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ORIGINAL ARTICLES.

A CASE OF THROMBOSIS OF THE SUPERIOR MESENTERIC ARTERY.*

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The case which forms the basis of this paper was seen in consultation with Dr. Phelps and Dr. Carson. W. W., age thirty-six, traveling salesman, married, a strong, robust man, who had been quite an athlete. Forty-eight hours before I saw the case, either during a game of tennis or shortly afterwards, was seized with acute abdominal pain. No movement of the bowels since that time. Vomiting began twelve hours after first seizure of pain, about thirty-six hours before I saw him. Had never been fecal. No heart lesions were found and the lungs seemed perfectly healthy. Moderate distention of the abdomen. Diagnosis: Intestinal obstruction. The family of the patient were informed that the diagnosis was, in a slight measure, doubtful, but that in any case an early operation gave the best chance for recovery. That the operation itself would probably not seriously endanger the patient's life, and that in case of an obstruction, which we believed to be present, the earlier the operation was done the better his chance for recovery. With this understanding the operation was accepted. Patient was removed to St. Luke's Hospital, entering at 4 P. M. March 20, 1901.

Operation made at 8:30 P. M. At this time temperature by mouth 100°; pulse, 84; respiration, 22.

Intestines were found moderately distended. Examination of the appendical region and of the sigmoid showed no cause for the obstruction. The only finding was what appeared to be a twist of the mesentery on itself, amounting to perhaps one-half turn. It was felt at the time that this hardly accounted for the obstruction, so that the finding was disappointing. The small intestine showed a rather marked congestion, and in some places there was a particularly tight, tonic, muscular contraction present, rendering the caliber of the small intestine extremely narrow, practically closing it. This contraction would involve several inches in length of the intestine in various portions with intervening parts of the gut normal. The spasm would continue for some time after

* Read before St Louis Surgical Society.

the gut was brought out into view. Then the contracted portion would relax and the tonic spasm of the muscular wall of the gut occur in other portions, not traveling in continuity of the bowel.

The colon was somewhat distended and seemed rather thin but showed no other change. Careful search was made in the region of the muscular contractions of the intestines without finding adhesions or attachments of any kind, or evidence of stricture. A rectal tube was passed and gas could be forced through the tube from the intestines. Finding no definite lesion the abdomen was closed in the usual way, the intestines being replaced with some difficulty.

At 10:20 P. M., on return of the patient to bed after the operation, pulse was 94. One pint of normal salt solution was given per rectum.

March 21st, 1 A. M., temperature by rectum, 101.4°; pulse, 98.

At this time patient was suffering and was given ¼ grain of morphine hypodermically. Enemas of normal salt solution were continued at four-hour intervals and were retained. Patient took small quantities of cracked ice and water, beginning at 5:30 A. M. These were retained.

March 21st, 9 A. M., temperature by rectum 100°; pulse, 98; respiration, 24.

At 3:30 P. M. patient had a small, liquid, brown stool. At 4:30 was given two ounces of sulphate of magnesia with thirty drops of laudanum by high enema. At 5 P. M. vomited for the first time since the operation. At 6:20 temperature per rectum, 100°; pulse, 100; respiration, 24. Vomiting from this time on was very frequent. At 8:30 P. M. patient had a large liquid evacuation from the bowel, dark colored, no blood. At 10:40 patient was given another high enema of sulphate of magnesia, glycerine and turpentine. This was immediately expelled with quite a quantity of flatus, but very little fecal matter.

Temperature rose in the night to 102°; pulse, 100.

March 22d, 5 A. M., normal salt enema was given, which was expelled immediately with some fecal matter and a quantity of flatus. Vomiting persistent. It appeared at this time that the patient was suffering from a paretic condition of the intestines and it was felt important to have the bowels moved if possible. At 9:30 A. M. patient was given a high enema of eight ounces each of fresh ox gall and water. This was expelled immediately with some flatus. At 12 noon patient had a large, soft, dark stool with flatus. During the afternoon the temperature was 102°; pulse, 100, and respiration, 26. Vomiting had been constant and persistent. Pain was not severe, requiring no opiates.

March 23d, 3 A. M., again passed a liquid, very light colored stool with a great deal of flatus.

6:45 A. M. temperature, 101.4°; pulse, 110, and respiration, 28. From this time on temperature and pulse rose constantly.

At 6 P. M. rectal temperature, 103°; pulse, 116; respiration, 28. Vom-

iting continued. Patient continued to expel flatus and occasionally small quantities of fecal matter.

As 10:35 P. M. temperature, 104.4°; pulse, 164; respiration, 36.

March 24th, 6 A. M., temperature, 105.2°; pulse could not be counted; respiration, 36. Patient died at 9:30 A. M.

Family would not allow autopsy, so that the examination was incomplete, only the abdomen being examined through the courtesy of the undertaker, who allowed the examination at the time of the embalming. Autopsy by Dr. M. B. Clopton at 1:30 P. M. Flatus could be expelled through the rectum by pressure. There was a gangrene that began just below the duodenum and extended throughout the whole of the small intestine which included the cecum and about one-half of the transverse colon. This gangrene was sharply defined at either extremity. The fat throughout the peritoneal cavity was natural in appearance; no fat necrosis. The pancreas was removed and showed no abnormalities. The kidneys were rather small but showed little else except a cloudy change. The liver was not increased in size and showed no change. The aorta was then explored from a point just behind the pancreas. The superior mesenteric artery was found with its lumen closed by a thrombus for some inches, beginning one-half inch from its origin from the aorta. This, I believe, to have been a primary thrombosis of the superior mesenteric artery.

Occlusion of the mesenteric vessels by thrombus or embolus is a somewhat rare occurrence. However, Watson, in 1894, was able to collect 52 cases, and I have found reports of nine cases published since. The great majority of these cases are reported as embolus of the mesenteric artery.

In the majority of cases patients have suffered with cardiac disease of such nature as to make it probable that an embolus lodging in the artery caused the disturbance. No doubt some of these cases, however, reported as emboli were due to thrombosis without embolus. Welch says in this connection:

"It is probable that a certain number of the cases reported as embolic were referable to primary thrombosis."

In this case we found a twist of the mesentery, which we felt at the time of the operation might account for the congestion noticed in the small intestine. This twist might have so injured the wall of the superior mesenteric artery as to have become a determining cause of the thrombosis in this situation. This hypothesis, however, is not essential, but may explain the occurrence of the thrombosis. The slowing of the blood current produced by such a twist, in connection with the circular flow which this would entail, might in itself account for the formation of the thrombosis, without any injury to the arterial coat. In this case we have none of the usual causes for embolism or thrombosis. No history of syphilis, no heart lesion, no atheroma, no embolus elsewhere

and the thrombosis occurring in a young man. That such conditions as above described might have determined a thrombosis in this case may, I think, be granted. In support of such a belief I may be permitted to quote at some length from the exhaustive and masterly article on "Thrombosis," by Wm. H. Welch. He says: "There is no difficulty in producing thrombosis experimentally by injury, either mechanical or chemical, to the vessel wall."

"The prevailing view is that platelets exist in normal blood, where they circulate with the red corpuscles in the axial current. In accordance with this view many observers, following Eberth and Schimmelbusch, explain the beginning of the white thrombosis by the accumulation of pre-existing platelets upon a foreign body, or in consequence of slowing or other irregularities of the blood flow, on the damaged inner wall of the heart or vessels."

"Contact with the abnormal surface sets up an immediate viscous metamorphosis of the platelets, whereby they adhere to each other and to the foreign body or vascular wall."

"Diminished velocity of the blood current is not by itself an efficient cause of thrombosis."

"Slow circulation, however, in combination with lesions of the cardiac or vascular wall, or with the presence of micro-organisms or other changes in the blood, is an important predisposing cause of thrombosis, and frequently determines the localization of the thrombus."

"Eberth and Schimmelbusch find that under normal condition the platelets circulate with the red corpuscles in the axial blood current, but make their appearance in the outer, still zone, when the rapidity of the circulation is sufficiently diminished. Mere slowing of the circulation, however, does not suffice to form thrombi; there must be some abnormality of the inner lining of the vessel wall with which the platelets are brought into contact, in order to induce the viscous metamorphosis of these bodies essential in the formation of plugs. Hence, Eberth and Schimmelbusch conclude that it is only by combination of slowing of the circulation with changes in the inner lining that the formation of thrombi can be explained."

"Von Recklinghausen attaches more importance to a whirling or eddying motion (Wirbelbewegung) than to a mere slowness of the circulation. Changes, therefore, which impair or destroy the smooth, non-adhesive surface of the normal lining of the vessels play an important part in the etiology of the thrombosis, and thrombi thus caused may be called adhesion thrombi."

"The most important of the structural changes of the vascular and cardiac walls which cause thrombosis, are those due to inflammation, atheroma, calcifications, necrosis, other degenerations, tumors, *compressions*, and *injury*. Here, again, may be emphasized the importance of

retardation, and *other irregularities* of the circulation in rendering these various lesions effective causes of thrombosis."

"The majority of arterial thromboses are caused by some *local injury* or disease of the arterial wall, or by the lodgment of an embolus."

"But after all has been said, it is carrying scepticism to an unjustifiable extreme to refuse to admit the occurrence of primary arterial thrombosis in ineffective, cachectic and anemic states, under circumstances where the localization cannot be attributed to arterio-sclerosis or other pre-existing arterial disease. Mr. Jonathan Hutchinson has recently reported observations of rapid thrombosis of arteries without obvious disease of the walls."

"In the differential diagnosis between thrombosis and embolism emphasis is properly laid, in the former, upon more gradual appearance of the symptoms of vascular occlusion, and pre-existing arterial disease; and upon the detection of some source for an embolus, particularly cardiac disease, in the latter."

In the case reported above, I believe that the thrombosis had taken place very shortly before the operation. I quote again from Welch on "Embolism:"

"Mall has shown that contraction of the intestine exerts a marked influence upon the circulation through this organ. In the light of his results it is interesting to note, that immediately after closure of the main trunk of the superior mesenteric artery of a dog, the intestine is thrown into violent tonic contraction and remains in an anemic, contracted condition for two or three hours; after which the spasm relaxes and the bloodless condition at once gives place to venous hyperemia and hemorrhagic infarction, which appears in the third to the sixth hour after the occlusion of the artery." Again he says: "The ischemia is increased by a tonic contraction of the intestinal muscle, which follows for two or three hours closure of the superior mesenteric artery."

As to diagnosis, the above quotation from Welch gives most of the causes of thrombosis independent of embolism. As to the causes of embolus: any disease of the left side of the heart or the aorta which might allow the detachment of a clot, a vegetation, etc., would make possible the lodgment of an embolus in the mesenteric arteries. The diagnosis of this condition must of necessity be very difficult. The clinical histories given by the various observers seem to point to certain symptoms as more or less typical of the condition. The symptoms and effects produced by thrombosis of the mesenteric veins are practically the same as follow occlusion of the mesenteric arteries by thrombus or embolism.

In cases of occlusion of the mesenteric vessels the symptoms commonly found are:

Pain.—Usually violent, paroxysmal, colicky, abdominal pain; ordinarily not definitely localized.

Of twenty-seven cases analyzed by Watson, in which the clinical histories were satisfactory enough to justify drawing deductions, pain was the first symptom or coincident with vomiting or diarrhea in eighteen cases, or 66 per cent.; in two cases, localized in epigastrium; one in right iliac fossa; four cases, absent; five cases, not noted.

Diarrhea.—This is mentioned as a prominent symptom by most of those reporting cases. It is often profuse, usually bloody. The passages are described as foul-smelling, having the odor of carrion. In Watson's summary, diarrhea in seven cases was bloody; in six cases, no diarrhea or other disturbance of the bowels; in five cases, obstipation; in two cases, no record.

Hemorrhage into the bowel is certainly more profuse in cases of plugging of the mesenteric veins than in occlusion of the artery. Bloody stools, on which many authors insist (Nothnagel, Kussmaul, Gerhardt) show in many cases only on section, as no outward show appears.

Vomiting.—Usually very early and persistent. Often one of the first and most prominent symptoms. According to Watson, in fourteen cases, first or early symptom; in two cases, bloody; in three cases, fecal; in six cases, no vomiting; in seven cases, no record.

Subnormal Temperature.—This is a symptom emphasized by most writers on this subject. Kussmaul, one of the earliest to give a satisfactory account of symptoms, emphasizes a rapid and marked sinking of the temperature. In many cases this symptom, however, either was not present or not noted. In my case the temperature was never subnormal.

Abdominal Distention.—This usually begins a day or two after the onset of the illness, and increases gradually. It occurred in twelve cases (Watson); in four cases, no distention; in eleven cases, no record.

Several authorities, Kussmaul among others, note the presence of effusion in the peritoneal cavity. This symptom, however, is not noted in most of the reported cases as a symptom of this condition.

Preceding or coincident diseases which would predispose to the formation of a thrombus, or which might point to the possibility of an embolus, are important. Hence a careful, searching inquiry into the former history of the patient, and as to present condition of all organs, should be insisted on. The presence of emboli elsewhere is mentioned also as bearing on the probabilities. Welch says: "By far the most characteristic symptom which is present in the majority of cases, not in all, is the passage of tarry blood in the stools, which are frequently diarrheal, and sometimes have the odor of carrion. In nearly all cases there is a hemorrhage into the bowel, but the blood is not always voided."

Palpable masses due to blood collections in the infarcted bowel or mesentery have been found in a few cases.

Welch says again: "The chief emphasis for purposes of diagnosis is to be laid upon the occurrence of intestinal hemorrhage, not explicable by independent disease of the intestine or by portal obstruction, in combination with other symptoms mentioned, and with the recognition of some source for an embolus, perhaps of embolic manifestations elsewhere. In the majority of cases diagnosis has been intestinal obstruction or acute peritonitis." The diagnosis of this condition must of necessity be tentative and uncertain, frequently impossible. "Diagnosis impossible," says Borszeky. Perhaps the condition most apt to be confounded with it is intussusception. In both we may have diarrhea, intestinal hemorrhage, pain and vomiting. However, intussusception is apt to occur in young subjects. Fitz estimates that 56 per cent. of intussusception cases occur in subjects under ten years of age. In an analysis of twenty-seven cases of occlusion of mesenteric vessels Watson found none under ten, and only one between ten and twenty years. In any case the differential diagnosis between the two conditions is perhaps of interest rather than importance. The treatment would very likely be the same.

Prognosis.—Plugging of the superior mesenteric artery by embolus or thrombus is ordinarily followed by hæmorrhagic infarction of the intestine supplied by the artery. This, however, does not always result. Damage to the intestinal tract following occlusion of the mesenteric vessels may vary from complete gangrene of the intestine supplied by the occluded artery, to a simple venous hyperæmia and paralysis of the bowel. This difference of result must depend upon the suddenness with which the closure takes place. Litten lays stress on the fact that in order to produce hæmorrhagic infarction of the intestine supplied by the occluded artery, the occlusion must be sudden or very rapid.

I quote again from Welch's article on embolism: "Intestinal infarction is not the *imperative* result of occlusion of the superior mesenteric artery. Both the trunk and the principal branches of this artery may be *gradually* closed without serious effects. The rapid and complete closure of the superior mesenteric artery, however, is followed with great regularity, probably constantly, by hæmorrhagic infarction of the intestines. There have been several instances in which embolism or thrombosis of the trunk of this artery has caused hæmorrhagic infarction extending from the lower part of the duodenum into the transverse colon."

Hæmorrhagic infarction of the bowel may be insidious in its onset and course. "Usually, however, the onset is abrupt and grave intestinal symptoms are present."

Councilman says: "The superior mesenteric artery is in no way a terminal artery in the sense of Cohnhein. There are numerous anastomoses, not only between the very small branches, but with the gastroduodenal and inferior mesenteric. Where the closure of the artery takes place slowly enough to allow the development of a collateral circulation

there may be entire recovery, even after complete closure of the mesenteric arteries.''

Virchow and Tiedemann have found in the section room cases where the superior mesenteric artery was completely obliterated by old, firm thrombi or connective tissue without any lesions in the jejunum or ileum.

A case reported by John Chiene, a dissecting room subject showed very free collateral circulation. The main trunks of the cœliac and mesenteric arteries were totally occluded by an old embolic process. Their branches, however, were free. The branches of the mesenteric vessels were filled through the superior hæmorrhoidal artery, which was as large as the femoral. Blood reached the superior mesenteric through the left and middle colic arteries, which were double their natural size. There was great enlargement of the extra- and retro-peritoneal plexus of the ordinarily small arterial vessels, and they served as the channel of communication between the internal iliacs and the mesenteric arteries. This plexus was placed along the sides and posterior surface of the rectum. Chiene concludes that enlargement of this plexus, which was described by Prof. Turner in 1863, may take place to such an extent as to become the channel of blood supply to the abdominal viscera when their main arterial trunks are obliterated. Cases giving symptoms indicative of hæmorrhagic infarction followed by recovery are reported by Gull, Finlayson, Cohn, Moos and Lereboullet. Other cases of recovery after symptoms justifying a diagnosis of thrombosis or embolism of the mesenteric vessels are reported by Aufrecht, one case; Ott, two cases. These cases recovered under expectant treatment—*i. e.*, there was no operative interference. The usual result of occlusion of these vessels or their branches is infarction of the affected bowel and death of the patient. This is proven by the clinical histories of the reported cases; nearly all patients die. There seems to be undoubtedly a more rapidly fatal ending in cases of thrombosis of the mesenteric veins than in the cases of occlusion of the mesenteric arteries. In Fagge's case of thrombosis of branches of the mesenteric vein supplying the jejunum, death ensued in twelve hours from onset of the attack. Pilliet also reports a case ending fatally within twelve hours of onset of illness. Another interesting feature of these cases is that a plugging of one of the smaller branches of the artery or of a small branch of the mesenteric vein, followed by infarction of only a small part of the intestine, has produced as severe and as many (or more) abdominal symptoms as when the main trunk of the vessels is occluded, and, Watson believes, may lead to more speedily fatal termination. Of eight cases of complete occlusion of the main trunk of the superior mesenteric artery analyzed by Watson,

One presented no abdominal symptoms.

One only slight tympanlites and abdominal pain.

In one abdominal distention and vomiting were the only abdominal symptoms.

In one acute colicky pain was the only abdominal symptom.

In one abdominal pain and diarrhœa were the only abdominal symptoms.

This fact makes it impossible to discriminate clinically as to the extent of the lesion; even if the symptoms enable us to make a fairly definite diagnosis as to the nature of the case.

Treatment.—The first record I find of operative interference in this condition is in 1895, when J. W. Elliott, of Boston, reported operation on two cases within three weeks. The first case, a man of twenty-five, had had a hernia of the right side for four years. This had been reduced with difficulty and pain ten months before. Since that time had had pain at site of rupture on any sudden exertion. Had had pain in right lower abdomen for two weeks. Slight pain the day before entrance, while playing ball, in the right groin; patient went home and vomited. He ascribed the vomiting to smoking. Slept well. Next morning bowels moved naturally and man went to work. One hour later had pain in the right inguinal region. This pain increased, and patient went home and vomited. Operation was made twenty-four hours after the onset of the severe pain. No diagnosis. Patient was in bad condition; pulse 140. Large quantity of bloody fluid escaped from abdomen. No evidence of hernia, constriction or twist. Intestine neither dilated nor contracted. A knuckle of dark, gangrenous looking, small intestine was found. Enlarged glands in the mesentery. Mesenteric vessels felt thickened and seemed to be plugged. Intestine contained quantity of dark bloody fluid. Four feet of the small intestine resected, taking care the section was made in healthy tissue. The mesenteric vessels cut, bled but little. Union of the cut ends was not made, patient's condition not justifying this procedure. The mesenteric borders of the cut ends were carefully united, and the open ends of the gut stitched into the abdominal wound. Some two weeks after the operation it became evident that the patient was losing flesh. The discharge from the wound was digesting the skin in that region. The ends of the bowel were then dissected free, and the ends united. Following the second operation was a small fistula, which was closed a few months later. Complete recovery followed.

Elliott remarks that the obscure point in this case is the *cause* of the plugging. No syphilis, no twist, no source for embolism or thrombosis. Elliott thinks it highly probable that the vessels were occluded by a process originating within themselves.

Dr. Whitney remarks in Dr. Elliott's case that the possibility of an *axial twist* of the intestine cannot be denied as a predisposing factor for the thrombosis; but there is not the slightest evidence, either at the time of the operation or in the specimen, that such a condition had taken

place. The other associated conditions seem also to have been excluded here; and we are forced, as far as the evidence goes, to the assumption of a *primary thrombosis* of the mesenteric veins as the cause of the infarction.

Elliott's second case was a man of nearly seventy years. The diagnosis before operation was obstruction (probably cancerous) of the descending colon. On opening the abdomen, free gas and fecal fluid were found in the peritoneal cavity. The descending colon was opened and stitched into the abdominal wound. The gut was friable, stitches cut out, gut finally held in place by a rubber plate passed into the bowel and pulled tightly up against the abdominal wall. A second opening made in the median line, peritoneal cavity washed out, and glass drain placed in the pelvis. Patient was relieved for a few days. Soon failed, and died at the end of a week. Autopsy showed three or four inches of the colon gangrenous and perforated. General peritonitis. Thrombus in the trunk of the mesenteric artery, primary; chronic endarteritis the cause.

Gordon, in 1898, also reports a case of resection, in a woman, forty-five years of age, giving history of syphilis of eight or ten years' standing. Was seized with sudden severe griping pain in the lower part of the abdomen and vomiting; bowels were not moved subsequently to the attack of pain. In this case there was no abdominal distention, and the tumor was easily detected in the right iliac region. Case was looked on as one of obstruction. Abdomen opened in the middle line below the umbilicus. There was escape of fluid and a distended coil of very dark bowel presented in the wound. The peritoneum had not lost its polish, and, indeed, there were none of the unequivocal signs of gangrene present. There seemed to be a contraction at the outer end of the loop, and this marked off the darkened region very abruptly. Below, the transition to the normal intestine was more gradual. The wall felt thickened, emitting a heavy but not offensive odor. In the mesentery was found a continuation over a little area of the same condition. A resection of the intestine was made, Ball's bobbin being used for the purpose. Two feet of the intestine removed. A considerable area of mesentery was also removed. Mr. Gordon notes that some vessels in the mesentery bled freely when divided. Woman recovered. This case, I believe, may be fairly considered one of hæmorrhagic infarction of the intestine, dependent upon a sudden obstruction of a branch or branches of the mesenteric vessels. These cases give practical proof that in certain cases resection of the infarcted intestine may be followed by complete recovery. All of these cases have been operated upon without a clear diagnosis of the condition. Probably most cases of thrombosis or embolism of the mesenteric artery may not be recognized before operation. But in many cases presenting symptoms of obstruction, or cases presenting symptoms suggestive of thrombosis or embolism of the mesenteric ves-

sels, an operation seems justifiable. In many of the cases suffering in this way the general condition of the patient must necessarily be very bad. Cases of embolus are usually associated with serious lesion of the heart or aorta, and are unfavorable subjects for operations. However, in any case where general conditions justify surgical interference, operation should be undertaken early. Resection of the infarcted portion of the gut, where practicable, should be made, taking care to cut wide of the diseased tissue; and it would seem that the removal of a wedge of mesentery corresponding to the diseased portion of gut might spare the patient the danger incident to the presence of the thrombi in the vessels. To be sure, most of the cases met with will probably present so great an extent of infarcted intestine that it would preclude any resection. Such cases must necessarily be left alone. But the exact conditions in the abdomen can be recognized *only* after exploratory section. This, in a well-appointed hospital, should not materially increase the risks. Lothrop, who reported three cases, I think sums up the matter well. I quote, "If embolus is diagnosed, *operate*, for neglect is sure death."

"If embolus is *suspected*, *operate*, for the dangers of an exploratory laparotomy in well-appointed hospitals are less than the risk incurred by expectant treatment."

As regards the amount of intestine which can be safely resected, with recovery, Senn experimented on dogs, and concluded that where more than one-half of any part of the small intestine was resected and the animal survived the operation, marasmus followed. Kocher resected two meters and eight cm. for injury of the gut in a railroad accident. This patient remained well, except for a diarrhœa, which was easily started by any errors of diet. Braun resected one meter and thirty-seven cm. in an operation on an umbilical hernia. This patient died four months later of inanition.

Grzebicky believes that the resection of 286 cm. in man is perfectly feasible. In a recent article by Park are recorded seventeen cases in which more than two meters have been removed; fourteen cases recorded as recovered. The largest amount resected, with subsequent recovery, was 330 cm. by Ruggi. In Park's article nothing of the after history of the patients noted as recovered is given, except in his own case, in which 265 cm. of gut was removed. This patient was reported in excellent health eleven months later.

In any case in which occlusion of the mesenteric vessels is suspected, in which, for any reason, operation is not made, the heart's action should be stimulated in every way possible, bearing in mind that the only hope in cases of this kind, except by operation, is through the establishment of a collateral circulation, which may enable the affected parts to retain their vitality.

Watson, after analysis of the cases collected by him, says: "In about one-sixth of the cases the autopsy showed that the intestinal lesion was sufficiently limited and well defined to allow of a successful resection of that part of the bowel." This proportion, it seems to me, is larger than will practically be found amenable to surgical interference with a fair prospect of recovery. However, there must be a small proportion who may be saved by prompt and intelligent action, and it behooves us to grasp the opportunity to save even this limited number of sufferers.

REFERENCES.

Watson: Boston Medical and Surgical Journal, 1894, cxxxi, p. 552.
Welch: A System of Medicine, Vol. vi, Allbutt, 1900, p. 155.
Welch: A System of Medicine, Vol vi, Allbutt, 1900, p. 228.
Kussmaul: Wurzb. med. Zeitschrift, 1864, V. S. 210.
Litten: Virchow's Arch., 1875, lxiii, S. 289.
Councilman: Boston Medical and Surgical Journal, 1894, cxxx, p. 410.
Chiene: Journal Anat. and Physiology, 1869, iii, p. 65.
Finlayson: Glasgow Medical Journal, 1888, Vol. xxix, p. 414.
Elliott: Annals of Surgery, 1895, xxi, p. 9.
Gordon: British Med. Journal, 1898, Vol. i, p. 1447.
Lothrop: Boston Med. and Surg. Journal, 1874, Vol. cxxxi, p. 557.
Kaufmann: Virchow's Archiv., 1889, Vol. cxvi, S. 353.
Faber: Deutsches Archiv. fuer kl. Med., 1875, Vol. xvi, S. 527.
Gerhardt: Wurzburger Med. Zeitschr., 1863, Vol. iv, S. 141.
Grawitz: Virchow's Archiv., 1887, Vol. cx, S. 434.
Ponfick: Virchow's Archiv., 1870, Vol. i, S. 623.
Taugh and Harley: Centralbl. fuer d. med., Wissen, 1895, S. 673.
Welch and Flexner: Journal Exp. Med., 1896, Vol. i, p. 35.
Howse: M. S. Trans. Path. Soc. of London, 1878, Vol. xxix, p. 101.
Fagge: Trans. Path. Soc. of London, 1876, Vol. xxvii, p. 124.
Sievers: Berliner Klin. Woch., 1902, No. 9, S. 183.
Ott: Muench. Med. Woch., 1900, No. 14, S. 455.
Falkenburg: Archiv. fuer Klin. Chir., 1903, Bd. 70, Hft. 4, S. 992.
Oppolzer: Allg. Wien. Med. Ztg., 1862, Vol. vii, S. 125.
Pieper: Allg. Med. Centr. Ztg., 1865, S. 493.
Aufrecht: Deutsch. Archiv. fuer Klin. Med., 1901-02, S. 586.
Smith: London Lancet, January, 1894, p. 155.
Osler: Med. Chirug. Soc. of Montreal, April 27, 1883.
Molliere: Lyon Medical, 1871, viii, 691, 779.
Kolbing: Beitraege fuer Klin. Chirug., herausgeg. von Paul Bruns, 1902, Vol. xxxiii, S. 519.
Park: Archiv. Internationales de Chirurgie, Vol. i, Fascic i, p. 106.

THE CLINICAL SIGNIFICANCE OF PROLONGED UTERINE HEMORRHAGE.*

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One of the most troublesome and annoying symptoms of affections of the female generative organs is that of abnormal uterine flow. It may occur at any time of life, though it is most noticeable during the years of menstrual activity. It may take the form of prolonged menstruation, or may begin and terminate between two successive menstrual periods. Precocious menstruation, which may be exaggerated by contamination or manipulation of these organs in the child, may last a considerable length of time. In one case I saw, the flow had lasted five weeks. Of injuries during birth little need be said. The use of much force in delivery may so embarrass the circulation as to lead to uterine congestion, with constant oozing of blood through the mucosa. Whether trauma to the spinal column or to the brain can cause uterine hemorrhage in the infant is purely speculative. Female infants have been known to have prolonged vaginal flow of blood, and the woman who has passed the menopause, even for a number of years, is by no means free from this symptom. Twice I have seen it in women ninety years of age.

The *causes* of this condition are multiform. In the infant it may be due to injuries during birth or to abnormal conditions of the walls of the blood vessels or to the blood itself, either inherited or acquired. When acquired, it is probably most frequently due to infection, and that generally through the umbilicus. Under such conditions it does not vary in pathology from other spontaneous hemorrhages in the newly born, such as melæna, hematemesis or hemorrhage from the umbilical cord, skin, conjunctiva or other mucous membrane. Later in the life of the individual, it may at any time be due to trauma. Menstrual precocity, with embarrassment of nerve control over the female generative organs, and some of the acute exanthemata, such as scarlatina, diphtheria, etc., are the most frequent causes before the age of puberty.

During the period of generative activity—from puberty to the menopause—the variety of the causes and the frequency of the symptoms are greatest. Among the great number of causes during this period of life are endometritis, subinvolution of the uterus, disease of the uterine appendages, infection of the uterus or appendages, the presence of foreign bodies in the uterus, retained fœtal appendages, threatened abortion, induced or otherwise, placenta prævia, the presence of tumors in the uterus, ovarian or tubal hemorrhage, ectopic gestation, new growths in

*Read by invitation at a meeting of the Medical Society of Alexandria, Virginia, February 9, 1904.

the uterus, pelvic adhesions, marked anæmia, syphilis, so-called hemorrhagic diathesis and pelvic engorgement from prolonged muscular effort in certain bodily positions. After the menopause the condition is practically always due to new growths, though occasionally senile endometritis may be the only condition discoverable to which may be attributed the blood loss. Conditions localized at a distance from the uterus may also produce prolonged uterine hemorrhage. Among these may be mentioned renal or hepatic sclerosis and incompetency of the cardiac valves. In fact, when blood stasis in the inferior vena cava from any cause is present, uterine hemorrhage is liable to occur.

Traumatism has been found to be the cause in many unique cases. In one seen by myself, a child, eight years of age, riding on the handle bars of a bicycle, fell and the lamp bracket was forced through the perineum, causing a complete laceration and uterine hemorrhage for a number of days. Among the reported cases is one impaled on the handle of a hay fork; another upon the horn of a goat; and many others from injuries of an almost similar nature.

In endometritis, prolonged menstruation, with or without profuseness of flow, is usual. Irregular hemorrhages from this cause are not at all uncommon, nor should hemorrhage lasting for several weeks at a time, even after a period of many months, be considered very rare. Obre reported the case of a virgin, fourteen years of age, in which the first menstrual discharge could not be arrested and death resulted. The autopsy showed a softened and ecchymotic mucosa partially detached from the uterine muscularis.

In the *London Medical Gazette*, in 1846, Whitehead reported a case in which a girl of seventeen fell on the ice in the street and sustained a severe shock. Ten days later menstruation, which had been established for four years, appeared, and was followed by profuse hemorrhage for five or six days, from the effects of which she only recovered for ten or twelve days. The following month the catamenia lasted sixteen days. The next period was normal, but a few days afterward metrorrhagia began that was impossible to control, and terminated fatally in thirteen days. At the autopsy no organic lesion was discovered. The uterus was nulliparous, rather larger than usual, with walls although less firm than usual but of normal thickness. It contained a clot of blood which filled the cavity. The appendages were normal.

Nor should we forget that sexual intercourse in vigorous individuals when disparity in size of the male and female organs exists, is a frequent cause of irregular uterine hemorrhage.

In subinvolution of the uterus, the tissues of that organ are in a state of atonicity. There is persistent venous engorgement and a boggy and relaxed mucosa which needs be influenced but slightly that venous oozing from it may occur.

A diseased condition of the uterine appendages is commonly found

when uterine hemorrhage is prolonged. This may be of an acute infectious variety that has reached these organs from the uterine cavity. The infectious process in the uterine mucosa has caused a degeneration of the capillaries there, and perhaps it is the element of infection independent of tubal or ovarian involvement that prolongs the flow. But in other cases in which the appendages are crippled from infectious process and after the process has become quiescent with perhaps death of the invading micro-organism, we find hemorrhage recurring though careful curettage of the uterus has been performed. In this case, however, probably prolonged venous stasis is a prominent causal factor. Foreign bodies have been found in the uterus and their removal has promptly disposed of the steady blood loss for weeks. We have already referred to blood clots found in the uterus at autopsies from fatal hemorrhage; and West reports a case where autopsy showed no other condition to which might be attributed the fatal uterine hemorrhage. Threatened abortion may extend over a period of weeks without positive evidence of pregnancy and during most of that time metrostasis persists. After removal of part of the conception products severe and even fatal hemorrhage may result. In one case to which my attention was called, persistent hemorrhage followed a supposed emptying of the uterus following a miscarriage. Autopsy showed a fetal head of three or four months' development had been left in the uterus. In another case a woman had induced abortion, passing the two months' fetus last February; hemorrhages continued, and in August she passed the fetal appendages with cessation of the flow.

Placenta prvæia is a fairly common cause of irregular uterine hemorrhage, which may or may not be severe. Ectopic gestation is a frequent cause of uterine hemorrhage. Probably this symptom is most marked in tubal abortion, in which the symptoms are more prolonged and less severe than in rupture. The metrostasis is likewise less in quantity and usually extends over a greater period of time. Tubal and ovarian hemorrhage, independent of ectopic pregnancy, are not uncommon causes of uterine hemorrhage. In women suddenly chilled during menstruation the menstrual flow may promptly cease with increased congestion of the appendages resulting. Blood is poured into the cavity of the Fallopian tube or into the Graafian follicles or corpora lutei, and in a short time the uterine flow is re-established for a considerable length of time. This condition of the ovaries and tubes may be unilateral or on both sides.

Pelvic adhesions of the uterus and appendages are conducive to uterine congestion, relief from which is found in metrostasis. New growths producing uterine hemorrhage are carcinoma, fibroma, fungi and polypi, hydatidiform or fleshy moles, and rarely sarcomata. The new growths producing hemorrhage are usually located next the mucosa or developed in it (carcinoma). The uterine hemorrhage in carcinoma

is usually a symptom of a late stage of the disease. Marked anemia may lead to hemorrhage from any portion of the body, but the uterine mucosa has a special predilection to such process. Syphilis by its changing the structure of the walls of the arterioles in the uterus has a tendency to prolong uterine flow.

After the menopause uterine fibroids, simple or degenerated, and carcinoma of the cervix or body of the uterus are probably the most common causes of this symptom. Senile endometritis and the various forms of degeneration of the mucosa, such as polypi, fungi, etc., are practically the other conditions leading to uterine hemorrhage.

Cases are not uncommon in which women a few months or years after menstrual life is supposed to be ended have taken long walks or have undergone severe mental or physical strain and have been subjected to subsequent uterine hemorrhage.

Diagnostic Value.—The diagnostic value of this symptom is slight, independent of the history of the patient and careful physical examination. General conditions must be considered as well as the history of trauma or possible pregnancy or of local diseases situated at a distance from the uterus. In one case observed by me severe uterine hemorrhage at frequent intervals had alarmingly exsanguinated a young woman twenty-eight years of age. Marked mitral insufficiency was discovered and the administration of infusion of digitalis promptly terminated the flow. The principal importance, however, in diagnosis during the childbearing period lies between abortion, some form of endometritis and ectopic gestation. In these cases we have no large tumor, such as fibroids that are easily felt, and if the amount of intraperitoneal hemorrhage has been slight or not walled off by adhesions, we may have little to guide us in a physical examination between these three conditions. In endometritis, however, the condition has usually existed for some time, and in the usual symptoms experienced in abortion and ectopic gestation there is a history of at least one menstrual period being absent just preceding the attack. The other symptoms of pregnancy should be sought, and in practically every case of ectopic pregnancy a mass, even though small, will be found on one or other side of the uterus. Between endometritis and polypi or fungi, the history of the case gives great assistance. In tubal and ovarian hemorrhage absence of the flow for one or more periods is usually not a symptom; after the menopause this symptom will at first arouse suspicion of malignant degeneration.

Treatment.—The treatment is based upon the diagnosis of the condition causing the hemorrhage, each receiving its requisite treatment unless the hemorrhage be severe, when vaginal packing, ergot, salt solution, stimulation and recumbency in bed may be indicated. In those conditions requiring curettage alone, this operation may be done promptly in most cases. If severer surgical intervention is necessary, evidence of progressive internal hemorrhage being absent, time may be utilized in improving the patient's general condition before operation to great advantage.

1404 H street.

RADIOTHERAPY IN THE TREATMENT OF ACNE VULGARIS.

By Martin F. Engman, M. D., St. Louis, Missouri.

[continued from march issue, 1904.]

When the lesions are thus superficially situated, the curette, when passed firmly and swiftly over the skin, detaches the crust and scrapes off the heads of the papules, pustules and comedones, and their contents can then be easily expressed. The local medication used can, therefore, act more directly upon the effending organisms after the removal of the protective crusts and covers of the lesions. Superficial and mild cases of acne are, in my experience, very stubborn to the rays; so much so that I have abandoned their use in such cases and rely upon the more efficacious curettage with local medication.

In the writer's experience the x-rays are particularly beneficial in two forms of acne: 1st, acne indurata, so-called, when the lesions are flatly convex, presenting no summit or peak, whether superficial or deeply situated, and when of a markedly inflammatory nature; 2d, in acne rosacea, accompanied more or less by active inflammatory symptoms.

When the lesions of acne are more or less deeply situated in the skin and are of a flatly convex form, such as we find in acne indurata, the curette fails to perform its proper office and glides over the little lesions, leaving them in their former condition; therefore, the lancet must be used to evacuate their contents, which causes some scarring and does not prevent the formation of new lesions in the neighborhood. Here the rays act as a specific, causing the little tumors gradually to disappear, sometimes as if by magic. Often after the first treatment have I seen marked improvement. There is no other remedy with which I am familiar that has this specific action; the effect is a specific one, for the lesions can be made to disappear under their influence without producing any obvious change in the normal skin about them—an action similar in its results to that of mercury upon syphilitic lesions. Such a result must awaken the enthusiasm and gratitude of one who has patiently wrestled with a stubborn condition like acne indurata for years, with at times discouragement amounting almost to despair. Before the introduction of the rays in the treatment of acne indurata we could promise the patient little more than a slim diet, much medicine, many thrusts from the lancet, greasy salves, sulphurous lotions, while now we can cause the disappearance of the disease without any of these hardships. Even upon a diet liberally mixed with chocolates, patties and other much-vaunted pimple producers, have I seen the disease uniquely disappear; however, I do not recommend this particular dietary except as an experiment.

By the older methods of treatment relapses were as severe as the original attack; in fact, new lesions would appear during active medication,

in spite of the most scrupulous care and diet, thus dragging the cases on for months and years. With the rays relapse is not so frequent; when it does occur the lesions are much less resistant, more superficial, and are far more easily eradicated than the earlier ones. By judiciously timed exposures, after the cure of an attack, recurrence can in the majority of cases be prevented. One of my patients who had not been free from acne lesions for eighteen years, has now enjoyed perfect immunity for eight months. This lady had been treated by some of the most celebrated men in this country and Europe, had spent months in water cures, had been to celebrated internalists, dieted, had conscientiously tried to relieve herself of this disease, but without avail until she submitted to the rays. Such an example is enough to convince one of their efficacy. In acne rosacea the results are equally as good as in acne indurata, but the involution of the lesions is slower than in the former condition.

Mild curettage of the face on the days that the rays are not used is, in this condition, often of great assistance. In the management of acne rosacea, as well as acne indurata, new lesions occasionally appear during the series of exposures, but they are non-resistant, mild and quickly undergo involution. Relapses in the majority of cases can be prevented in the former as well as in the latter condition by the proper use of the rays after the initial eradication of an attack.

Those who have used the x-rays in acne are sanguine of their efficacy; yet, many doubt the advisability of using an agent which may be so potently destructive and terrible in its action in so harmless a disease.

In the first place, acne is not a harmless disease. Of course it does not destroy life, but it does in many, many instances destroy the social ambition and future happiness of those whom it afflicts. Its disfiguring scars render hideous many a charming face and turns an otherwise happy girl into a morbid, sensitive and melancholic individual—one who would grasp at any straw to be free of her unsightly disfigurement. Acne is not to the afflicted individual a harmless disease, as it may change the whole course of her future career and happiness.

The dangers of the x-rays in acne are: 1st, destructive dermatitis; 2d, atrophy of the tissues not dependent upon an active dermatitis; 3d, slowly progressive changes in the skin, which are spoken of in a vague way as possibly occurring years after treatment.

1. Of the thousands of cases of acne treated by the rays, I have not been able to find a report of a burn of any degree. But this fact, if it be a fact, must not mislead one. Burns can occur and possibly have occurred; therefore, in the use of the rays such a possibility must remain constantly before the operator. He must know his tubes, the energizing apparatus, and must examine his patients before each and every exposure in the bright sunlight, for any bronzing or redness of the skin. The smallest details are never unnecessary to prevent untoward effects. The most dangerous factors in this respect are: (*a*) overconfidence on

the part of the operator. After thousands of exposures one might become careless, or possibly over-confident in his judgment; (*b*) too much zeal and, therefore, zealously push the treatment to a degree when a severe reaction might follow; (*c*) idiosyncrasy, which should be looked for in every case, no matter what the nature of the emergency may be—a sufficient time should be allowed for the appearance of any reaction during the initial exposures; (*d*) the use of irritating local applications during the treatment by the rays; (*e*) the great danger of attributing an erythematous blush to cold, heat, winds or other irritants, when such an erythema, in one undergoing x-ray treatment, might possibly be due to the effects of the rays, and, therefore, subsequent exposures would be dangerous. Any erythema occurring upon the face of a patient during x-ray treatment should be looked upon with suspicion.

My series of cases have been treated in the following manner: The patient's reaction to sunlight is inquired into and the answers carefully weighed and considered, for those whom the actinic rays of the sun markedly effect are more susceptible to the x-rays; therefore, in such a case one should proceed with more than usual caution. In the usual run of cases the first exposure is five minutes, with a soft tube, emitting enough light to show the outlines of the hand upon the fluoroscope. The hair is protected by lead foil, and also the eyes and eyebrows. The tube is placed at nine inches from the skin. Four days later a similar exposure is given. Then three days later and afterwards two days. I have never seen reaction occur during these initial exposures, yet in many cases I have remarked much improvement in the acne. After the initial exposures the rays are used three times a week, the length of time varying from five to ten minutes, according to the state of the case, with the tube never nearer the skin than six inches; usually eight inches. The light is always at the initial degree and in no case does the current exceed two amperes. By this mild treatment the lesions disappear without producing erythema or bronzing. In the forty-eight cases bronzing occurred only once and erythema once. Both lasted for but a few days.

Many operators advocate the production of an erythema even in acne. This as a routine procedure is dangerous, for to cause this reaction the treatment must be more energetically given and is therefore not as completely under control. The milder method probably requires longer, but is just as efficacious in the end, and is certainly far safer. However, when an erythematous reaction is brought about by carefully regulated exposures, as to time and distance of tube, it usually disappears in a short time and is harmless, if the treatment is abruptly stopped upon its first appearance. In my work, careful record of each exposure is taken: date, time and distance. A stop-watch marks the minutes; and a trained attendant is always with the patient. No manipulation of the face is practiced on the days the x-rays are given. The patient is examined in a good light before each exposure, for a reaction, and is instructed to re-

port any burning or itching. If there is any redness of the face from any cause the exposure is delayed until the succeeding day. During the treatment the following lotion is given the patient to sop on the face several times a day:

℞ Resorcini ..... ℥ ss
Zinc oxidi ..... ℥ j
Pulv. calamine prep. ..... ℥ ss
Aq. rosæ ..... ℥ iij
M. Sig.—Extr. use; shake.

This preparation is soothing, mildly antiseptic and non-irritating.

In using the preparation it is well to have the patient wash it off before coming to the office, as the powder it contains might conceal an erythema.

Proceeding in this cautious manner an eruption is removed in from four to sixteen weeks. After the cure of the attack a weekly exposure for several weeks is given and then every two weeks, which I believe is a wise procedure to prevent relapse. It is always well after removing an acne eruption to instruct the patients to use an antiseptic soap and lotion constantly in the routine of their toilet, to prevent recurrence; also, to warn them against coming in contact with the skin of those infected or to use their toilet articles. I am positive I can trace infection in many instances. I have five cases under my care at present in whom acne lesions appeared for the first time after visits to a certain popular "Dermatological parlor," where the patients received face massage for wrinkles, increased fat in certain parts of the face, etc. In the regions massaged the acne lesions occurred. These lesions contained a mixed infection of the staphylococcus and acne bacillus. Therefore, I believe local preventive treatment, along these lines, is of the greatest value.

In the treatment of acne by the x-rays, one of its first effects is the decrease of the oily seborrhea which usually accompanies this disease.

2. Atrophy of the skin and subjacent tissues has been reported after long course of exposures for acne, without the production of marked acute inflammatory symptoms. This result is, of course, very unfortunate and should be kept in mind when the treatment has to be pushed and continued for a long period. I cannot understand how atrophy could occur without the previous production of some slight but obvious reaction, such as bronzing or mild erythema, during the course of the treatment. To produce an atrophy of the skin or its appendages by the rays, more than a leucocytosis must be obtained. The direct specific effect of the rays must be induced; that is, their destructive action upon the cells through the production of degenerative changes, by increasing the length of exposure, decreasing the distance of the tube from the skin, and, possibly increasing the amount of energy in the tube. In very stubborn cases of acne there is a great temptation to hurry things in this manner,

but it is a dangerous procedure, and I believe is the cause of the majority of these unfortunate results. A longer course of treatment with mild doses of the rays, is, at any rate, a safer method. The beneficial results of radiotherapy in acne is not due, I believe, to the atrophy of the glands of the skin, but to the mild leucocytosis which occurs before the more specific action of degeneration of the highly differentiated structures.

3. Often in the use of new potent remedies there is much mysterious whispering in awe-like tones of the probable terrible results which will ensue years and years after such a treatment. This now assails the use of radiotherapy in acne. Several patients have refused the rays, not from the fear of a "burn," but from the terror of its effects in years to come. To refute these rumors is, at present, impossible. Time only can do this; but reasoning from analogy, a knowledge of the action of the rays, and by looking at the subject from a common-sense view, I am led to believe that these rumors or prejudices have sprung from those unfortunate cases in which much destruction was caused by the rays in their early use. I do not believe that grave atrophy, or tissue changes of a grave character, can be produced without causing certain preceding observable symptoms, therefore this fear of atrophy should cause one to cease treatment with the rays, upon the first appearance of the least sign of bronzing or erythema.

If bronzing or erythema is produced by mild, carefully regulated exposures, and the treatment is immediately stopped upon their first appearance, it is hardly possible to conceive of any grave trouble that could follow such an effect or method of treatment.

CLINICAL REPORT.

A CASE OF COMPLETE EXTIRPATION OF THE LARYNX.*

By N. B. Carson, M. D., of St. Louis, Missouri.

About the latter part of February I was consulted by Dr. Loeb concerning a patient of his who had a carcinoma of the larynx which upon examination could be distinctly seen involving the left side. Appreciating the fact that the laryngoscope fails to reveal in all cases the full extent of the disease, I advised an operation for the removal of the entire larynx, being radical on the subject of removal for malignant troubles, believing only in that way is a complete eradication to be accomplished if it is to be accomplished at all. Placing the situation very plainly before the patient, I advised him to enter the hospital to have the larynx removed in its entirety. On the 6th of March he came to Mullanphy Hospital and upon the 9th I performed laryngectomy.

The patient was forty-eight years of age, good family history, good habits and, otherwise than the trouble for which he was in the hospital, healthy. He gave the following history of his present trouble: Nine months before, following an attack of so-called la grippe, he noticed a hoarseness which gradually increased until he almost completely lost his voice, being able to speak only in a loud whisper. About three months before entering the hospital he experienced difficulty in swallowing, feeling as if there were a lump in his throat which would burn and which apparently impeded the downward progress of solid food especially. Upon examination of the neck there was a noticeable thickening or fullness upon the left side with an involvement of the glands along the upper border of the hyoid bone.

The operation performed was Roetter's with some modifications, which consists of an incision from the upper border of the hyoid bone down the median line of the throat as far as the third or fourth ring of the trachea, and a cross incision extending along the lower border of the hyoid bone from the anterior margin of one sterno-mastoid muscle to the other. This incision extended through the skin and fascia, exposing the muscles. The larynx and upper four rings of the trachea were then cleared on both sides to the postero-lateral border. The trachea was then divided between the second and third rings completely across and the lower end freed from its attachments and a tracheal tube with a Hahn's extension introduced. Stay ligatures were then passed between the cartilages. These three, one upon each side and one in front, were left sufficiently long to be placed in the hands of an assistant, whose duty it was to keep the trachea well pulled up and maintain the

* Read before the St. Louis Surgical Society, March 9, 1904.

tube in position. During this stage of the operation the trachea was not attached to the skin, as is advised by some operators, but left free for two reasons: first, to allow of its being manipulated so as to prevent the entrance of blood into the lungs; and, in the second place, to allow a wider field for the succeeding steps of the operation.

An incision was then made through the thyro-hyoid membrane about the junction of the upper with the middle third, and the layers of this membrane divided until the mucous membrane was reached, which was seized with a pair of dissecting forceps and the pharynx opened. I will say here that unless one is thoroughly familiar with the anatomy of the part he will be very much surprised at the depth of the mucous membrane in this situation. When the mucous membrane has been opened the different layers of the thyro-hyoid membrane are divided laterally so as to expose the epiglottis, the upper border of which is seized and drawn out through the opening, and the upper border of the esophagus is divided over the arytenoid cartilage.

The field of operation is then transferred to the lower end of the incision, and the upper end of the trachea, which has been left attached, together with the cartilage and the trachea, is then separated from the esophagus and its removal accomplished. The upper end of the trachea is now attached to the skin, and the mucous membrane of the upper end of the esophagus and pharynx are united. The muscles are then brought together and, finally, the skin. This closes off the pharynx completely, leaving a funnel-shaped tube from the base of the tongue; and the opening below through which the trachea appears.

The operation required one hour and fifteen minutes and the patient was returned to bed in very good condition, speedily reacted from the effects of the trying ordeal and made a most excellent recovery, leaving the hospital on the fourteenth day.

For the first thirty-odd hours nothing was permitted to pass the lips except small quantities of water which were taken in and spit out immediately, the patient being nourished by the bowel. At the end of about thirty-six hours he was allowed a teaspoonful of broth, followed by a couple of teaspoons of sterilized water every hour. This was gradually increased until the fourth or fifth day, when he was allowed a cupful of broth every four hours, the bowel feeding being discontinued at this time. At the end of a week he was given solid food in the shape of the yolk of a hard boiled egg, soft toast, etc. On the eleventh day regular diet in full quantity was allowed. On the fourth day after the operation he said, "How much?" to his wife, who had addressed some remark to him in regard to food, and the next day upon my visit he addressed two or three words to me.

A CASE OF URETERAL DISEASE SIMULATING CYSTITIS, WITH UNUSUAL TENESMUS FOLLOWING URETER CATHETERIZATION.

By H. McC. Johnson, M. D., of St. Louis.

Mrs. X., widow, thirty-six years of age, whom I saw with Dr. Glasgow at the Mullanphy Hospital the middle of February, 1904, had presented symptoms of bladder disturbance for eight years. The subjective symptoms were all referable to the bladder, the patient never complaining of any pain or difficulty about the ureter or kidney. The condition came on suddenly with frequent and painful urination, the pain being prominent whenever a small quantity of urine collected in the bladder. Straining and bearing-down pains were marked at intervals. The frequency of urination amounted to six times during the sleeping hours, and eight to ten times during the day. The quantity for the twenty-four hours varied between forty and fifty ounces. A very slight albuminuria and a few pus cells constituted the only abnormality found upon examining the urine. Macroscopically there was a slight increase above normal of the sediment, while the supernatant fluid remained clear. Local applications to the bladder, especially of silver nitrate, were badly tolerated, and failed to benefit the patient. Occasionally an injection into the bladder immediately inaugurated severe tenesmus and pain, with considerable constitutional discomfort. This would occur apparently without explanation. Fever was never a feature. The only relief the patient ever obtained from her symptoms was for a short period following air dilation of the bladder and cauterization of what were regarded as ulcerated spots, which treatment, however, later failed to make any impression upon the disease.

By external abdominal palpation the right ureter could be distinctly traced from the brim downward into the true pelvis and almost as far upward as the kidney, appearing to be hard and about three-eighths of an inch in diameter as it rolled from under the pressure of the fingers. There was some tenderness in the lower segment. Some thickening could be distinguished in the anterior vaginal wall.

Following an injection into the bladder the first week in February there was such tenesmus and pain, with frequent urination, that it required considerable morphine to tide the patient over until the symptoms subsided.

When I saw the patient on the 11th of February, 1904, she had just recovered from this last experience, and was passing urine six times at night. It was decided to do a cystoscopy, and to catheterize the right ureter to exclude stricture and stone, and get the separate urine. On the 15th of February I cystoscoped the patient with a Nitze ureter catheterizing in-

strument, and finding the bladder, with the exception of a few spots of redness, remarkably healthy and free from disease, I turned my attention more closely to the ureteric orifices. The left orifice appeared healthy, but the right ureteric orifice was gaping open in an oblong fashion, about one-fourth of an inch by an eighth of an inch in diameter, and around it for perhaps one-eighth of an inch was a halo of redness. So far the patient had complained of no discomfort and stood the cystoscopy well. As the tip of the ureter catheter touched the ureteric orifice it set up a severe tenesmus, and as the catheter passed up the ureter, which it did easily and without obstruction, the straining became so severe that the perineum would bulge forward, almost simulating the bulging of the perineum during labor. The pain, too, was so intense that I had to give up the idea of leaving the catheter in the ureter for the purpose of collecting the separate urine, and immediately withdrew it. From this time on severe tenesmus was constant, and required large doses of morphine to give the patient any comfort whatever. This condition of straining and pain kept up for one week without abating. During the second and third weeks it gradually subsided, leaving the patient at the end of the third week in about the condition in which we found her at the beginning.

The interesting feature in this case is that the pain and tenesmus should be so severe without any evidence of intensified inflammation. The urine during the three weeks after the catheterization showed no appreciable increase in sediment and no evidences of inflammatory reaction, but the condition was simply one of exaggerated ureteral hyperesthesia. There was, however, some increase in the albumen, the kidney function evidently being disturbed through reflex action.

It is rather surprising that a ureter so thick to palpation, as felt before the catheterization and as confirmed afterward, should exist with no symptoms pointing directly to it with the exception of the tenderness. This case also illustrates one of those in which the symptoms are misleading. For eight years the case had been regarded as one of bladder disease and presented symptoms as such, and yet it is clear that the tenesmus and pain arose from the disease of the ureter, as evidenced by the comparatively healthy condition of the bladder and the fact that the minute the ureter catheter touched the ureteral mucous membrane the patient's usual symptoms were largely exaggerated. We may explain the fact that occasionally a bladder injection would cause somewhat the same train of symptoms by supposing that the injection at times would gravitate toward the right ureter and reflux into it.

The case was evidently one of tuberculosis of the right ureter, although we have not been able to demonstrate the bacilli as yet, and a guinea-pig which was injected is still under observation. The kidney, so far as could be ascertained by palpation, was unaffected.

EDITORIAL COMMENT.

PHYSIOLOGICAL CHEMISTRY AND BIOLOGY.

The great evolution that has taken place in modern methods of studying the processes of life was brought about by applying the teachings and principles of physiological chemistry to these processes. At first this was done tentatively and with some misunderstanding, as, for instance, in the functional investigation of kidney secretion, but very soon the view widened and embraced problems that formerly seemed inaccessible. The practical application of the measuring of the osmotic pressure of blood and urine, it must be admitted, has brought some results, but we must not forget that these results are not by any means the expression of a recognition of the function itself, and in this respect we must remember the utter failure of this method again and again, in that stage of secretion where the insufficiency is most pronounced, namely, in uremia. The osmotic pressure may give valuable hints as to the recognition of the existence of a diseased condition, but it alone will not explain this condition; it does not teach us everything about the molecular composition of a fluid and must be supplemented at least by finding its electric conductivity. What is necessary is to study life processes, not alone with regard to chemical structure, but with regard to the chemical dynamics and kinetics of these processes. The protoplasm of cells is the seat of constant reactions and the influence of diversified conditions on these cells is so far a *terra incognita*.

During the last few years the work of a great number of investigators has hewn the first trails into this mystery and has opened possibilities to a knowledge which heretofore seemed so absolutely barred. Constantly recurring vitalistic assertions show how near we have been to the point of confessing to an ignoramus. Lately we again begin to believe that ultimately we will understand life's processes with the same degree of sufficiency as to logic and causality as we do physical and chemical processes. Among these investigators stand in the first place those who have studied the nature of the action of salts on life processes. The essential importance of salts for the existence of life was long known, but the numerous theories offered in explanation of it show how far from the truth we were. Their action was designated as beneficial or toxic. Physical chemistry, however, has shown that salts do not act as salts but only in their dissociated form, as the atoms themselves which compose the salt molecule. These atoms are not the atoms as expressed in our chemical formulæ which are bound in a molecular combination, but are individual atoms and possessed by an electrical charge, the ones positive (kathions) the others negative (anions). In a solu-

tion these electrical charges balance each other; if a current is passed through it the anions wander to the anode, the kathions to the kathode, where they give off their charge and become the atoms of chemistry. In a sodium chloride solution the chlorine acts as the anion, the sodium as the kathion. It can be shown that the physiological effect of this salt depends altogether upon the anion, the negative ion. Salts of other metals either behave in the same way as those of barium or in an opposite manner, as potassium. Although at first glance it appears that thus the activity of the kathion is predominant, an opinion held by many observers, among them Jacques Loeb, it remained for A. P. Matthews to show that the difference is due to the variations in the tenacity with which the ions hold their electrical charges. In sodium chloride the anion parts readily with its negative charge while the sodium holds to its positive electron. Potassium chloride shows just the reverse affinities and cannot, therefore, have the same effect as sodium chloride. The different degree of affinity of the ions can be accurately measured and calculated by an ingenious method worked out by Matthews, and in a great number of processes in animals and plants others have found that the anions always assert a stimulating effect and the kathions are inhibiting. The degree of the effect depends only upon the degree of dissociation of the salt; for instance, bichloride is much more toxic than the mercuric cyanide, because the latter dissociates much less than the former. Intact molecules of these salts do not exert any action, for the reason that there are no free affinities.

No salt is known in which the electrical efficiency or affinity of the ions to the electrons is perfectly the same. The one always predominates, so that any single salt solution must necessarily prove to be irritating (stimulating or inhibitory) to protoplasmic activity. Protoplasm needs an electrical substratum for its life processes, in which there exists a potential equivalence of the positive and negative charges. Salt solution alone will make a frog muscle rhythmically contract for twelve hours (constant stimulation followed by depression and death), while the addition to the solution of a little potassium chloride will continue its life for twenty-four hours and longer (potassium as kathion predominant and neutralizing the affinities of the chlorine ions). A single salt must always be poisonous. The substratum in which the protoplasm works is disturbed by the addition of salts of a different electric affinity. The protoplasmic activity is thus influenced to greater activity (stimulation) by anions, to decrease in activity (depression) by kathions. This can be demonstrated for animal tissues and has been demonstrated for vegetable cells by Professor Greely.

The reason for the presence in every organism of small amounts of salts of different chemical composition is given by these ingenious investigations. The latter allow, on the other hand, suggestions as to the effect that the disturbance of this electrically balanced solution of those

salts must have on the condition of the organism. Matthews has practically applied this principle to the therapeutic use of salt solutions containing several salts in certain proportions, and has observed results that correspond completely with the theoretic considerations that suggested their use. This part of the subject may be dealt with separately some other time.

The importance of the work done by Loeb, and mainly of that of Matthews, goes much further than the investigation of the role that salts play in organic life. It has for the first time become clear that it is necessary to abandon the viewing of vital processes according to the formulæ of inorganic and organic chemistry, but to search in them for the changes of the electrical balancing of the ions concerned. Electric stimulation is no longer an empiric procedure but will be established on a solid, scientific base. Fermentation, immunity and other specific vital phenomena will also come under the clearing influence of the work inaugurated by the classic researches of van't Hoff, Arrhenius, Oswald, and ingeniously applied to organic chemistry by others, among them in the front line Loeb and Matthews.

REFLECTIONS ON STOMACH SURGERY.

The brilliant article by Will J. Mayo, on resection of the stomach, which appeared in the March number of the *Annals of Surgery*, is sure to awaken renewed interest in this, one of the newer fields of surgical endeavor. One notes with surprise the amount of material which passes through the Mayo clinic in comparison with the volume which is seen by university surgeons in the great medical centers. Fifteen hundred cases have been examined at Rochester and 450 stomach operations performed. What this means can hardly be appreciated until the reader notes that the clinic at Zurich, Switzerland, during the entire tenure of Professor Kroenlein, has furnished only about seventy patients, even though this latter is a governmental station, and has at its disposal all of the influences which tend to concentrate large operative material.

Dr. Mayo states in this article that the technique proposed can be carried out by the average operator in from fifty-five to seventy-five minutes. Now, the writer is sure that the operation is done by the Drs. Mayo in even less time than this, since seeing William J. Mayo perform a suture gastro-enterostomy in exactly fourteen minutes by the watch, and his brother, Charles H., do the same thing in about the same time. The writer has further seen the elder brother perform an appendectomy through a gridiron incision with just ten minutes intervening between the first skin cut and the last stitch in the skin, everything having been done with extreme care and the abdomen closed in the usual four layers. It is only reasonable to suppose that men of such extensive operative experience, and of such natural mechanical skill, should somewhat over-

rate the abilities of the average operator. The writer has twice seen another western surgeon, who has an undoubted reputation for rapid operating, perform this operation of gastrectomy, and in each instance the operation required two hours for its performance, so it is all the more likely that the "average" operator cited by Dr. Mayo would require even more time than this.

Now, the thought that presses itself upon us is that the average operator should not attempt these operations at all, but that they should be done alone by masters of the art. Men of so much experience in this line and possessed of such perfect facilities in the way of assistance and surroundings, can do things which to them might seem not only possible but rational for the average operator to undertake; but it is more than likely that the average operator who has once attempted a gastrectomy will read with a certain degree of self-condemnation Dr. Mayo's opinion that the operation should be done by the aforesaid in fifty-five minutes to an hour and a quarter.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

Ficker's Typhoid Reaction.—MEYER (*Berliner Klinische Wochenschrift*, No. 7, 1904) reviews the disadvantages of the Widal reaction, and sums them up as follows: (1) Inasmuch as the agglutinine does not appear in the blood for several days after the inception of the disease, the serum reaction often gives no clue at a time when the difficulty of diagnosis is greatest; (2) this reaction is not an absolutely specific one, but in a great degree relative. This is shown in the fact that the blood of some cases of undoubted typhoid never presents a positive reaction, while the blood of others that have never had typhoid gives a positive reaction; (3) the proper performance of the reaction requires complicated apparatus and very careful technique.

The Ficker reaction is intended to overcome this last objection by simplifying both the technique and the requirements. Ficker maintains that the agglutination takes place just as well in cultures of dead typhoid bacilli as in the virulent state. For his reaction are necessary only a suspension of typhoid bacilli, some physiological salt solution, a pipette and a few test tubes. A definite time is not necessary, as is the case with the Widal reaction. Five minutes usually suffice for a complete determination.

The writer, in order to determine the value of the Ficker reaction as compared with the Widal reaction, carried on a series of examinations with the blood of typhoid and non-typhoid cases, with the blood of the living and the dead, and with the blood of animals. He found the results of the two reactions practically identical, and concludes that "the Ficker reaction not only leads to the same results as the original Widal reaction, but for theoretical and practical reasons is to be preferred, and is, therefore, to be highly recommended to clinicians and practitioners."

Clinical Observations Concerning the Gruber-Widal Reaction.—KREISSL (*Wiener Klinische Wochenschrift*, No. 5, 1904) arrives at the conclusion that a positive result of the Widal reaction points with great probability to the existence of typhoid fever, providing the existence of a previous typhoid can be excluded. The negative reaction does not speak with absolute certainty against typhoid. The procedure has special significance in the recognition of light cases that do not permit of a diagnosis from the clinical symptoms alone.

The writer's own experience seems to justify the conclusion that the Widal reaction is an early diagnostic aid.

No conclusions as to the character or severity of the disease can be drawn from the degree of agglutination.

The highest agglutinating power is reached in the third week—*i. e.*, in the stage of febrile decline, and gradually decreases. The cultivation of typhoid bacilli from the roseola spots gives fairly good diagnostic results.

Examination of the Blood of Pneumonia Patients for Pneumococci.—KINSEY (*Journal American Medical Association*, March 19, 1904).—The contradictory results obtained by various investigators concerning the presence and significance of pneumococci in the blood of pneumonia patients prompted the writer to carry out a series of investigations. Some have found them in every case examined, irrespective of the outcome of the disease, while others find them but rarely, and only in fatal cases.

The writer examined a series of twenty-five cases, and found pneumococci present in nineteen of them, or 76 per cent. The cases in which the results were negative were not favorable cases for the test, because the time proximated the crisis. The writer believes, therefore, with Fraenkel and Prochoska, that the pneumoccocus may be found in the blood of every pneumonia patient, and attributes negative results to unfavorable conditions for growth.

He believes that their presence in the blood is of no prognostic importance whatever. Of the nineteen positive cases in the series, 69 per cent. recovered and 31 per cent. died, while of the negative cases 33 per cent. recovered and 67 per cent. died.

Secondary Parotitis in Pneumonia.—PILCHER (*Wiener Klinische Wochenschrift*, No. 49, 1904) considers parotitis in pneumonia of sufficient rarity to justify his reporting the case which he had occasion to observe. He reviews the literature carefully and finds but few cases reported. The purulent fluid from the parotid in this case contained large numbers of diplococci, to all appearances identical with the pneumococci. Careful bacteriological examinations to determine their nature were not made.

Acute Complicated Obstruction of the Ductus Choledochus.—FINK (*Wiener Klinische Wochenschrift*, No. 49, 1904).—When icterus develops suddenly, following a gall-stone colic, and persists for a time, in other words, an acute obstruction of the ductus communis choledochus exists the rule is to defer operation. Surgeons, themselves recommend in such cases, that surgical interference be deferred.

The writer reports his experience in a case in which icterus persisted for four weeks and disappeared at the end of that time. A few days later it reappeared together with acute symptoms, pain, fever, etc. The patient died with symptoms of perforation, which the autopsy afterwards revealed.

The clinical picture of this case may be divided into four stages: the first, a period of four days, during which there was severe pain without fever or jaundice, represents the passage of the stone from the bladder through the cystic duct; the second began with the development of acute icterus and high fever, and represents the recurrence of the com-

plete obstruction of the common duct; the third stage, characterized by the disappearance of the acute symptoms with persistence of jaundice, represents the period during which the stone lay in the common duct; while the fourth stage, marked by the sudden development of acute symptoms, and the death of the patient, represents the perforation of the duct by the stone and the entrance of the contents of the bladder into the peritoneal cavity. The writer points out the importance of the most careful observation of similar cases, with a view to determining, if possible, the exact indications for surgical interference.

Hernia Intravesicalis.—Blum (*Wiener Klinische Wochenschrift*, No. 8, 1904) reports in this article the first case of intravesical hernia ever diagnosed during life. It occurred in a young man of twenty-three, whose chief complaint was that of chronic incomplete retention of urine.

The cystoscope revealed the hernia in the top of the bladder protruding into the abdominal cavity. Distinct peristaltic waves could be seen in the bottom of it. Through contraction of the muscle fibers in the wall of the bladder, which act as a ring, repeated temporary incarcerations may occur. This condition occurs often enough to be considered in the presence of indefinite bladder symptoms, pain, retention, etc.

THERAPEUTICS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

An Apparatus for the Production of Active Hyperemia.—Bier (*Muench. med. Wochenschr.*, No. 6, 1904).—It has been definitely established that a local, active hyperemia often yields extremely good results in the treatment particularly of chronic joint affections. Bier obtains this hyperemia, not as is usually done by means of hot, dry air, but by means of rarified air. For this purpose he has constructed a suction apparatus of glass, into which the joint to be treated is inserted. By means of one or more rubber cuffs the joint is enclosed air tight in the glass cylinder, from which then the air is evacuated by means of a pump similar to that used by bicycle riders for inflating tires, but acting in an opposite direction. The joint is thus put in an atmosphere of very low pressure and immediately becomes extremely hyperemic. Care must be taken not to exhaust the air too severely as rupture of the blood vessels may take place. By means of an ingenious contrivance gymnastic movements of the stiffened joint may be carried out within the apparatus, and so an increased mobility be obtained. The treatment has yielded good results in the discoverer's hands in cases of chronic arthritis, tuberculous joints and old sprains. He has devised a variety of patterns applicable to the hands, feet, elbows and knees. Technical difficulties have prevented its application to the shoulders or hips.

Vomiting of Pregnancy.—OELSCHLAEGER.—(*Zentralbl. fuer Gyn.*, No. 6, 1904).—The writer believes he has found in the administration of tr. nuc. vom., in combination with sodium bicarbonate, a sovereign remedy for the vomiting of pregnancy. Where abortion must nevertheless be induced, he brings about the latter by the injection of three grams of tincture of iodine into the uterine cavity.

Feeding by Means of Subcutaneous Injections of Albumen.—CREDE (*Muench. med. Wochenschr.*, No. 9, 1904).—An unnatural, or, as Leube calls it, an extra-buccal, feeding can take place in three ways: First, by means of the stomach tube or a gastrotomy opening directly into the stomach. This method, often very useful, presupposes relatively normal stomach, intestines, etc. Secondly, we may feed per rectum. In all cases, however, this method is insufficient and occasionally, as where the rectum is very irritable, cannot be used at all. The third method is the subcutaneous route. Hitherto only fats and carbohydrates have been given in this manner; the hypodermic administration of proteids has met with insuperable obstacles.

In order that it may be safely given subcutaneously, a proteid must fulfill the following conditions: (1) It must be soluble in water; (2) it must be sterilizable by means of heat without undergoing alteration; (3) it must produce little or no reaction at the site of injection; (4) it must be assimilable and fit to be used for the building up of protoplasm—that is, it must not be excreted unused through the kidneys, and (5) it must not be toxic, in particular, must not cause nephritis.

Of all known proteid preparations, the only ones that fulfill these conditions are somatose and Heyden's food (Naehrstoff Heyden), and that only when so greatly diluted that the nutritive value of the solution is slight. After many trials, Crede found the substance he was looking for in a preparation called kalodal, made by the Heyden company. It is prepared from meat, contains 95 per cent. easily assimilable proteid, traces of extractives, phosphates and iron and 0.2 per cent. salt. It dissolves readily in water, forming a yellowish-brown solution, is almost odorless and tasteless, slightly alkaline and readily sterilizable without undergoing alteration. The 10 per cent. solution is perfectly fluid; more concentrated ones are slightly viscid.

Crede tried the subcutaneous alimentation with kalodal upon a large amount of clinical material, chiefly individuals who were nearly unconscious from severe hemorrhage, cases of advanced peritonitis and ileus that could be fed neither per os nor per rectum, cases of esophageal or intestinal cancer, and, finally, cases of persistent vomiting after operations. His usual dose was 5 grams kalodal in 50 c.c. normal salt solution. This was either injected directly or added to 500 c.c. normal salt solution where a large saline infusion was also indicated. This amount of kalodal corresponds about to the proteid in one egg, and if given four or five times daily represents no small amount of nourishment, and may well serve to tide the patient over the critical period of his illness. Crede gives no detailed histories, but is quite certain that the results of kalodal injections are satisfactory, sometimes very strikingly so. They are, of course, not indicated in chronic cases of inability to take food, but where our task is to tide a patient who cannot be fed in the normal man-

ner over a few critical days, this new proteid preparation may well be of value.

Medicinal Treatment of Neuralgias and Myalgias.—E. MEYER (*Berliner klin. Wochenschr.*, No. 6, 1904).—The writer has been in the habit of administering hydrochinon in doses of 1 to 4 grams daily for neuralgias and myalgias. In only one case were unpleasant after-effects observed. He reports a number of cases, in some detail, that indicate a striking efficacy of hydrochinon in these conditions, even where other drugs had been tried without avail. In cases of articular rheumatism hydrochinon appeared useless.

How to Use Mesotan.—LUDWIG WEIL (*Muench. med. Wochenschr.*, No. 7, 1904).—A number of communications have been published recently pointing out unpleasant complications following the use of mesotan. These can always be avoided if the following precautions are observed:

1. Above all, mesotan should never be used pure, but always mixed with equal parts of olive oil.
2. This mesotan-oil should never be rubbed in vigorously, as is so often done, but should only be spread or painted on the affected joints several times daily.
3. As soon as the first signs of a dermatitis appear, the applications should be interrupted. Where the drug is to be used for some time, it is well to use it on only a portion of the affected joints in rotation.
4. It is an error to apply a firm bandage, still less an impermeable rubber or oiled silk dressing over the mesotan. The joints under treatment should either be left uncovered or at most wrapped in flannel.
5. Finally, the druggist should be cautioned to use only thoroughly dry vessels in dispensing mesotan. Moisture causes a splitting up of the salicylic ester with the formation of irritating compounds.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

The Prevention of Pneumothorax During Intra-thoracic Operations.—SAUERBRUCH (*Cent. fuer Chirurg.*, No. 6, 1904).—This extremely interesting article demonstrates that both pluræ can be opened simultaneously without serious damage to the patient, provided the whole procedure be carried out under conditions of atmospheric pressure less than that ordinarily obtaining within the air passages. The author's first experiment consisted in placing the animal, all except the head and his own hands, within an air-tight glass cylinder, from which the air was then partially exhausted. He found that he could, under these conditions, open both thoracic cavities with impunity and without the lungs collapsing or the animal's respiration being greatly disturbed. In this

way it was possible to cut away the ribs, sternum and entire bony wall of the thorax without the respiration being impaired. During the experiment the apparatus got out of order, air rushed in and the animal very promptly succumbed, thus proving in a negative way the success of the experiment.

The author's second experiment consisted in building an air-tight chamber large enough for the operator, his assistant and the body of a large animal. From this, as from the first, the air was partially exhausted and then all sorts of operations performed on the chests of large dogs. In this way it was possible to operate two hours at a time without any serious consequences either to animals or surgeons. The only unpleasant feature of the experiment was that the temperature within the chamber rose so high as to be almost unbearable, and this in spite of the fact that the rarefied air was being continually changed by an air pump. The most extensive operations were done in this way without any apparent influence upon the vitality of the animals.

Extraction of a Foreign Body from the Bronchus.—RICARD (*Gazette des Hopitaux*, No. 23, 1904).—The mortality which has attended the impaction of foreign bodies within the bronchus is said by the author to have been 56 per cent. where no operative procedure was attempted. Performance of simple tracheotomy reduced this to 30 per cent., and now modern surgery with its widened field bids fair to lower even this per cent.

Various authors have proposed to open the anterior and posterior mediastina, the latter appearing to be the favorite on account of being less dangerous than the other. However, such methods of attacking the bronchus directly are no longer to be entertained, since we know that foreign bodies may be extracted through the trachea or, in some instances, through the larynx directly.

The patient in question was a boy of three and one-half years who was playing on the carpet one day and on attempting to swallow a tack managed to inspire it into some portion of the bronchial tree. An x-ray picture showed it to be in the left bronchus, and the author managed to extract the same with a specially devised forcep, which he introduced into a long speculum which entered the bronchus through a tracheotomy sound. It is interesting to know that the tack was very rusty after having lain for fifty-seven days in the bronchus.

Goiters Inside of the Larynx and Trachea and Their Removal.—VON BRUNS (*Beitraege Zur. Klin. Chir.*, Band 41, Heft 1).—The rarity of this disease is such that only eleven cases have ever been noted, five of them at the hands of our author. Three of these cases he operated upon. The article recites the history of all eleven cases and they make interesting reading to be sure. The period of growth, at about the age of puberty, is about the same for these as for ordinary goiters. Where growth was noted within the air passages it was always an accompaniment of an enlargement of the thyroid itself. The symptoms were so typical in all cases that the author believes one should not fail to recognize such a growth when found. The diagnosis can rarely be in doubt, when in an otherwise healthy young person gradually increasing dysp-

nea occurs, and when at the same time a small, flat, sub-glottic tumor can be seen on the posterior or side wall of these structures. For a long time there existed only the vaguest theories as to the cause of such manifestations, but now it has been definitely proven that these intra-tracheal growths are simply small portions of the thyroid that have gradually grown in between the rings of the trachea and developed under the mucous membrane. In every case where careful examination has been made a direct connection has been found between the tissues within and that lying without. The cause is believed to be an early and very firm agglutination of the thyroid to the trachea. Prognosis depends to a great extent upon the question whether or not the little tumors cause respiratory difficulty. In the author's five cases it was possible by opening the air passages to completely remove the little tumors with knife, scissors and galvano-cautery.

Radical Operations for the Cure of Cancer in the Pyloric End of the Stomach.—W. J. Mayo (*Annals of Surgery*, March, 1904).—Dr. Mayo certainly voices a long-felt want when he urges earlier diagnosis in stomach troubles, and he would very properly have this done principally by the intelligent interpretation of clinical phenomena, to which a proper amount of significance has apparently not been given in the past by internal medical men. Mayo says we have been mislead into considering stomach troubles inoperable from the radical standpoint of laboratory methods, by a palpable tumor and by the history of previous ulcer. He considers this latter feature, gastric ulcer, to be one of the greatest importance, believing that a larger number of gastric cancers have their origin in ulcers than is usually supposed to be the case. The two things which govern the matter of operability are local extent of the disease and lymphatic involvement. Dr. Mayo has somewhat modified the views recently expressed by him on the amount of stomach to be removed, since Curao's anatomical researches on the stomach have come to be regarded as standard authority. He now removes all the lesser curvature but less of the greater curvature than was formerly considered necessary, since this can be done, giving the patient a better chance to survive the operation and still allowing of the complete removal of all infected glands.

Mayo's incision is in the median line and the actual operation is commenced by the ligation of the four arteries which supply the stomach. Then rubber-covered clamps are used to close the hollow viscera which are left, the division being commenced at the duodenum and the operator working to the left. He makes a direct connection between the closed ends of the viscera only when this can be done without the slightest tension. He usually finds it more feasible, however, to make a gastro-jejunostomy.

The technique proposed in this article has given decidedly better results than any used up to date, no one of the last eleven cases having died. To appreciate the plan of the operation it is of course necessary for the article to be read in the original.

The Final Results of Uranoplasty.—Ranzi and Sultan (*Archiv. Klin. Chir.*, Bd. 72, Hft. 3).—The material which is embraced in this article

consists of 105 cases from the clinic of Prof. von Eiselsberg in Vienna; consequently the results obtained are of considerably more than the usual value. Of these cases, an absolutely normal voice was regained in 10 per cent., a decided improvement was noted in 69 per cent., and no improvement of the voice occurred in 21 per cent. The intelligence of the patient plays a great role in this particular, as does education of the voice, it being possible to accomplish a great deal in almost any case under proper circumstances and surroundings. Of course, a perfect functional result can easily be obtained in an infant; still the mortality is so high in these cases that it more than counterbalances the results which accrue from the operation. An absolutely perfect result was obtained in a boy of seventeen in which voice culture was instituted. Hence, very early operation is to be recommended only in very strong children.

The Surgical Importance of the Accessory Ligaments of the Liver.—Ancel and Sencert (*Archives Provinciales de Chir.*, No. 2, 1904).—The authors go at some length into descriptions of the hepatic ligaments which are formed by reduplication of the peritoneum over blood vessels, etc. The most important points which they note in this connection are as regards these ligaments and their influence upon the operations which are done upon the biliary passages. As is well known, these so-called ligaments divide the vicinity of the liver into pockets, and may be of incalculable value to the patient by localizing what would be otherwise a general infective process. These ligaments guide us further in seeking certain anatomical structures. For instance, it may often be difficult to find the foramen of Winslow unless we follow the course of the cystico-epiploic ligament, when we cannot possibiy be deceived in our search. The article deals so extensively with the various points that it is not possible to do more than mention them in a review of this kind.

A Safe Method of Performing Jejunostomy.—Kelling (*Cent. fuer Chir.*, No. 5, 1904).—The simple and effective procedure proposed by the author consists in cutting into the jejunum and anastomozing the end of the upper portion into the side of the lower part; then the end of the lower part, which is left free by this procedure, is closed, first, by a simple ligature, and then by several rows of purse-string sutures in very much the same way that the end of the cecum is closed after the removal of the appendix. After the first purse-string suture is tied, a rubber catheter is pushed into the gut through a small slit just at the side of the first purse-string suture, and then several other purse-string sutures are placed around the gut, one above the other, some of them piercing the tube to hold it in place, and all surrounding it, when they are tied to further and further invaginate the tube into the end of the gut and thus prevent any leakage. The last purse-string suture is tied in the abdominal wall, and thus the peritoneum is closed.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

The Origin of the Plasma-Cells.—LEO EHRLICH (*Virchow's Archiv.*, Vol. 175, H. 2).—In Unna's laboratory, the place where Unna's plasma-cells were born, this paper was prepared. Ehrlich, by means of Unna's and Pappenheim's methods modified to a degree, thinks that he has found unmistakable evidence of the histogenetic origin of these cells. His opinion is that plasma-cells are derived from hypertrophic connective tissue cells by transformation, budding or division. The pictures published with the article seem at first glance convincing, but on closer inspection arouse the suspicion that phenomena of juxtaposition of different cells have deceived the author. For purposes like this sections of ten micra in thickness are hardly sufficient, and without any closer regard to the mode of development of the nuclei of the buds (the plasma-cells) a decisive interpretation cannot well be given. Unna's school adheres to Ehrlich's doctrine, that lymphocytic elements have no motile power and cannot penetrate through the capillaries. It seems that this doctrine is finally abandoned, and that at least part of the so-called round-cell infiltration must be considered as of hematogenic origin. To call all of the typical small lymphocytic elements forming so many inflammatory deposits daughter cells of the plasma-cells seems impossible as long as we believe that we can differentiate various forms of cells by their morphologic and tinctorial qualities. It is much easier in studying suitable tissues to see seeming transitions from lymphocytes to plasma-cells, than from the latter to the former. Investigations like that of Ehrlich cannot definitely solve such a question by looking for transition stages.

About Active Immunization of Human Beings Against the Typhoid Bacillus.—K. SHIGA (*Berl. Klin. Woch.*, No. 4, 1904).—While active immunization against typhoid infection was practiced only (Wright) by the use of bacilli killed by heat, a method that on account of the sometimes serious symptoms observed in the vaccinated individual cannot be recommended as a routine procedure, Shiga was instigated by his former observations, made together with Neisser on the production of free typhoid receptors, to use these for immunization. These free receptors were obtained by emulsifying twenty-four-hours agar cultures of the typhoid bacillus in physiologic salt solution (0.9 per cent.), heating these emulsions for one hour to 60° C., and then to allow them to digest or undergo autolysis for two days at incubator temperature (37° C.). The filtered emulsions were used as vaccine. The author himself and a colleague served for the experiments; their serum was examined for agglutination and bactericidal power before and at certain times after the injection. The latter (0.25 to 0.5 c.c.) was borne without the slightest reaction or inconvenience. The agglutinative quality of the serum, before the injection absent (dilution 1:10), rose within eight

days after it to 1:640. A year later it had decreased to 1:60. In the same way a very energetic bactericidal quality was developed. The experiments made are few in number, but very promising as to a way in which easily and without doing harm a pronounced and seemingly lasting immunity against typhoid bacilli may be obtained.

Protozoon-like Bodies Found in Four Cases of Scarlet Fever. — F. B. MALLORY (*The Jour. of Med. Research*, Vol. x, January, 1904).—Mallory has found in four cases of scarlet fever (early stage), in and between the epithelial cells of the skin and free in the lymph spaces and vessels of the corium bodies, bodies that to a degree suggest they may be of protozoon nature. The bodies vary from two to seven micra in diameter, and can be stained with methylene blue. They form a series of stages, including the formation of definite rosettes with numerous segments, which are closely analogous to the series seen in the schizogonic development of the malarial parasite. In addition, there are certain coarsely reticulated forms, possibly representing stages in sporogeny or of degenerate character. The illustrations accompanying the paper show very characteristic pictures of this organism, that the author calls Cyclaster Scarlatinalis. Although he does not absolutely assert that the organism is a protozoon, or that it is the etiologic factor in scarlet fever, he seems to be inclined to hope that further investigations will confirm his suggestion. It must be said that so far the mere finding of these bodies in cases of scarlatina can, of course, not be conclusive as to the part they play in the infection.

New Method for the Study of the Cellular Elements of the Blood and Other Fluids Containing Such Elements.—L. BARGON and CL. REGAUD (*C. R. de la Soc. de Biol.*, November 14, 1903).—To what degree of misconception the conclusions drawn from the study of cells dried to slides and fixed can lead has only lately been shown by the work of Schaudinn, Argurowsky and others, on the malarial parasites, and also by the recent publications about the shape of the mammalian red blood corpuscles (bell jar shape). Although our blood-slides, if properly prepared, appeal to the esthetic sense and at the same time, by the uniformity of their beauty, inveigle the belief that they represent the real state of their constituent elements, a comparison with any well-fixed section of tissue is bound to show the incorrectness of this belief. Our blood-slides show only artefacts. Schaudinn and some French investigators have succeeded in devising a method in which to fix and prepare single cells with the same accuracy and the same near approach to the living state as can be done for tissues. This method, however, is laborious, and needs a very great familiarity with the difficulties to succeed. In an ingenious way the problem has been solved by Bargon and Regaud, who take up a drop of blood (or a drop of the precipitate of a cell containing fluid) with a fixing solution. The whole is brought into a small test tube, allowed to sediment, is washed and dehydrated in the same tube and finally to the sediment is added some collodion. This, together with the sediment, is spread over slides, hardened in alcohol and can then be treated with the various methods of staining, etc., like any tissue section. The results of this method are surprising and instructive,

and will help to clear up many questions which, on account of the incomparability of cells in dried spreads and in sections of well fixed tissue, have been a matter of much discussion and controversy. The reviewer has used the method for some time with very interesting results.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

The Condition of the Uterine Appendages in Cases of Fibroma of the Uterus.—C. DANIEL (*Revue de Gyn. et de Chir. Abd.*, 1903, No. 1; rev. *Centralbl. f. Gyn.*, 1904, No. 1).—The author claims that in 59 per cent. of all cases of myomatosis of the uterus the tubes show pathological changes, such as catarrhal, parenchymatous and purulent salpingitis, hydrosalpinx and hematosalpinx, tuberculosis of the tubes and ectopic pregnancy. In 40 per cent. of the operated cases, pathological changes were present in the ovaries, consisting of cystic degeneration, tumors, suppuration and tuberculosis. Similar conditions were found in the broad ligaments.

In the writer's opinion three causes may be assigned as of main importance in the pathogenesis of these conditions: (1) Infection. (2) A fibromatous diathesis. Certain vascular changes produce an exaggerated formative activity of the cells, which leads to a hypertrophy of all muscular tissues of the genital apparatus. (3) A direct mechanical influence of the uterine tumors. By stagnation and inflammation, due to pressure, hydrosalpinx or hematosalpinx are produced.

These conditions are, as a rule, diagnosticated only at the time of operation. It would seem advisable, however, to think of them whenever a patient with uterine myoma complains of pain in the lateral fornix. In the writer's opinion the frequency of sterility among myoma patients can easily be explained by the frequency of these complications.

Malignant Degeneration of the Cervical Stump After Sub-total Hysterectomy.—L. G. RICHELOT (*La Gynecologie*, October, 1903; rev. *Journ. of Obstetr. of Brit. Emp.*, January, 1904).—Richelot considers that all that can be said in favor of supravaginal hysterectomy can also be said of total hysterectomy. The latter takes no longer in performing and causes no more bleeding. The dangers of vaginal infection can be easily avoided. If the vagina is infected, so is the cervical canal. There are cases certainly in which the sub-total hysterectomy is preferable (if the uterus for certain reasons cannot be well lifted out from the pelvic cavity), but as regards technique and immediate results there is nothing to choose between the two methods. The stump, which is left behind, may, however, become the seat of malignant degeneration, carcinoma or sarcoma. This is not a common occurrence, but it is met with in a certain number of cases. The writer observed three cases in his own practice, and has collected ten other well-authenticated cases from literature.

Richelot concludes his interesting paper with a critic of the modern tendency of advocating simple myomectomy. In his opinion the fibromatous uterus is not simply soil on which malignant tumors *may* grow; it is *the* soil on which they *do* grow.

Exploratory Hysterotomy.—F. Lejars (*Semaine Medicale*, Paris, Vol. xxiv, No. 2; rev. *Journ. A. M. A.*, February 13, 1904).—The writer comments on the necessity for direct inspection of the inner surface of the uterus in puzzling cases of hemorrhagic metritis. By this means discovery of some unsuspected fibroma or polyp will clear up the diagnosis and make it possible to cure the morbid condition with a trifling operation. The cervix is drawn down as for a vaginal hysterectomy, and is incised on the anterior median line, which avoids the cutting of vessels and bleeding. The incision must be carried beyond the internal os in order to expose the interior of the uterus. Several French gynecologists have recently mentioned the great value of this simple and harmless little operation as a routine measure in puzzling cases. The exploratory incison is always sutured at once.

The Fate of the Ovum and Graafian Follicle in Premenstrual Life.—Thos. G. Stevens (*Journ. of Obstetr. and Gyn. of Brit. Emp.*, January, 1904).—Stevens studied the retrograde changes of ova and Graafian follicles during the premenstrual life, basing his conclusions upon the microscopical examination of seventy pairs of ovaries, removed in the post-mortem room from children younger than ten years. The author confirms the generally accepted teaching that ovulation occurs before menstruation makes its first appearance. Graafian follicles and ova mature in premenstrual life by a constant, well-marked series of changes. The ovum, however, never reaches the same size as that of an adult female.

The size of the mature Graafian follicle is variable, the diameter being, as a rule, about one millimeter or a little less. The ovum is removed by a process of phagocytosis, but may, however, undergo a simple necrobiosis. The phagocytic agents are the cells of the membrana granulosa. The follicle eventually contracts by means of granulation tissue formed in its fibrous tunic, which latter absorbs the remains of the membrana granulosa and liquor folliculi.

In the present state of our knowledge of the function of the ovary we are forced to conclude that this organ plays a dual role, namely, that of supplying the ova and the products of some internal secretion. It is clear that the supply of sexual cells is unnecessary in infants, and so the follicles do not burst, but it is probable that internal secretion plays an important part in the development of the female child.

Affections of the Female Genitalia Due to Vaccination.—G. Loewenbach and A. Brandweiner (*Monatshefte fuer Prakt. Dermatologie*, Bd. xxxvi).—A vaccine pustule may by accidental infection lead to the formation of similar pustules in either the vaccinated or another unvaccinated individual. Non-vaccinated wet-nurses, nurse girls or nursing mothers may in this way acquire vaccine sores on their eyes, mouth, tongue, breasts, etc. The writers describe five cases in which the infection was localized

on the genitalia. As sources of the accidental transmission of the vaccine virus have been found the following: Use of the same towel, sleeping in the same bed with the freshly vaccinated child. In one case the infection was produced by the physician, who, after changing the bandage on the vaccinated arm of the child, carelessly made a vaginal examination of the mother without washing his hands.

During the first (pustular) stage the sores resemble pemphigus vulgaris or vegetans, eczema and herpes genitalis; during the second (ulcerative) stage especially they resemble syphilitic papules and aphthæ.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

A Clinical Study of Sixty-two Cases of Intestinal Infection by the Bacillus Dysenteriæ (Shiga) in Infants.—LA FETRA and HOWLAND (*Arch. of Ped.*, March, 1904) report the results of their study of sixty-two cases of infantile diarrhea in which B. dysenteriæ was found. The cases were all ambulatory ones, seen in the Vanderbilt Clinic in the summer of 1903. The severer cases were also seen at their homes on the days when they did not come to the clinic. When a child was brought with a history of diarrhea the attempt was made, by the insertion of a thermometer or a suppository, to obtain a stool. These stools were caught on sterile cotton, and at once taken to the bacteriological laboratory. Even cases of mild diarrhea and intestinal indigestion were examined.

As a routine measure the use of cow's milk was at once stopped in all cases; in breast-fed babies the nursing was forbidden for a time. Barley water, rice water, or broth, was substituted for the milk. Free catharsis was obtained by calomel or castor oil; other drugs were rarely used.

Eight of the patients were under three months, fifteen were between six and nine months, nine were between nine and twelve months, and fifteen were over one year. Proportionately speaking, the severe cases were more frequent in the older children, but in this series a majority of the mild cases under six months of age occurred in breast-fed babies.

There were fourteen severe cases; of these, one was breast-fed, five were given condensed milk, two Straus' sterilized milk, two grocer's milk, three fairly clean bottled milk, and one not stated.

In the whole series there were fourteen cases which had been entirely breast-fed, while two were partly breast-fed; eleven children had been fed on grocery milk, seven on bottled milk of fair quality, eight on condensed milk, five on proprietary foods without milk, five on sterilized milk, four on general diet; no statement in regard to seven.

The points specially emphasized by the authors as the result of their study of these cases are as follows:

1. The unexpectedly great prevalence of the dysentery organism in

cases of diarrhea, at least during the summer months. Of sixty-four cases examined consecutively at the Vanderbilt Clinic, sixty-two were positive. This result is all the more striking when it is remembered that all the cases were seen in dispensary practice, where, with the severest cases, the very mildest may also be seen. It is to be noted that most of these cases were seen early.

2. All types of diarrheal diseases, as characterized by their clinical symptoms, were found among these cases, running from the mildest intestinal indigestion to the severest ileo-colitis.

The course of the disease, while usually short, was prolonged in eight cases.

3. Taken as a whole, the cases must be classed as mild. There were four fatal cases, all under one year of age, all artificially fed and in poor condition, and also having the poorest care and attention.

For the low mortality the authors consider two factors to be of some importance: (*a*) the cool summer, and (*b*) the increasing knowledge among the tenement population of the care of infants and their food.

4. The striking number of breast-fed babies, fourteen in sixty-two—over 20 per cent. Not one of these fourteen children was even moderately ill, and not one of these cases would have been sent to a hospital. The stools in these cases were examined as a routine procedure, and this probably accounts for the large proportion of this class of cases.

5. The serum treatment (given in ten cases) was not used sufficiently to warrant any conclusions. While of apparent benefit in some cases, there were others in which no effect whatever was noticed.

Hernia in Young Children.—De Garmo (*Med. Record*, February 13, 1904) says that the most important predisposing cause is defective development, owing to imperfect descent of the testicle. The consequent lack of obliteration of the canal of Nuck allows protrusion of some of the abdominal viscera into the cavity of the tunica vaginalis, and hernia is thus established.

Of the direct exciting causes of hernia in children the author considers constipation, with resulting increase of tension on the abdominal wall, as of great importance. Whooping-cough, bronchitis, excessive crying and tight belly-bands are other causes.

In 2000 cases of hernia in the author's clinic, 985 occurred in children under fourteen. The forms met with in childhood are: inguinal, umbilical, ventral and femoral, their frequency being in the order named.

The symptoms of hernia in early life correspond, in their essentials, with those as seen in adult life. Pain, though not common, is more frequently seen than in adults. Hernia in children certainly causes more gastro-intestinal disturbance than it does in later life.

Treatment, by the application of a suitable truss, should be begun as soon as the hernia is discovered. If this be done, very little surgery will be needed in infancy.

Even strangulated hernia in infancy can often be reduced by proper manipulation under anesthesia, although it has been shown that strangulated hernia may be successfully operated at a very early age, even as

early as the eighth day of life. Strangulated hernia is certainly not as dangerous in infancy as in later life. In Thorburn's series of 110 cases there was a mortality of 24.5 per cent., but the ten infants in the series all recovered.

The relative importance of symptoms of strangulation in infancy is thus stated by Dowd: Tumor, vomiting, constipation, difficulty in urinating, restlessness and apparent pain, and constitutional depression.

The probable points of constriction in a strangulated hernia in infancy are, in the main, limited to two. One is at the external abdominal ring, the constriction being by the fibrous tissue which abounds in that region. The other is in one of the white, fibrous rings or bands which are often found in the sacs themselves. These bands, which are two or three times the thickness of the rest of the sac, are very tough and inelastic, and may be found at any part of the sac. They are most common in childhood, but may be found in adult life.

In operating for the relief of strangulated hernia in infancy or early life, it is of great importance that a closure of the parts be so made that a permanent cure may be effected. With reference to the question of operation for hernia in young children, the author believes that the prejudice against operation is rapidly disappearing, now that the operation has been shown to be both safe and successful. At the same time it is not to be forgotten that 90 per cent. of children under three years can be cured by mechanical means and proper care. After the child passes its sixth or seventh year, cure without operation is very rare.

The author tabulates the indications for operation in early life as follows:

1. Strangulated hernia—immediate operation.
2. All cases not controlled by truss.
3. Occasional protrusion with threatened strangulation.
4. When truss-wearing causes pain.
5. On children who cannot be brought regularly for attention.
6. In all cases of femoral hernia.
7. On all children over seven years of age.

The Relation of Measles and Tuberculosis.—GREZE (*These de Paris*, 1903; *Arch. de Med. des Enf.*, February, 1904) comes to the following conclusions, as the result of his study of the subject:

Cases of pre-existent latent tuberculosis are usually aggravated, especially in early childhood, by the advent of an attack of measles. Old tubercular foci, most often situated in the tracheo-bronchial glands, are often stimulated to renewed activity, and the way is thus paved for a generalized tubercular process.

Manifest tuberculosis, occurring at any age of childhood, is always greatly aggravated by an attack of measles, which hastens the destructive bacillary process, by weakening the organism, and by directly affecting the lungs.

Measles does not create tuberculosis, but it prepares the soil by its distinctive lesions, and by the general weakness which it induces. It therefore puts the organism into a state of receptivity for the bacillus; hence it is well to keep children with measles away from tubercular patients, or from places where such patients are being treated.

With reference to the effect of tuberculosis on measles itself, it is noted that in early childhood the periods of invasion and eruption are shortened, that the eruption is not well marked; that, by contrast, the fever and pulmonary symptoms are particularly intense.

In later childhood, tuberculosis does not modify the classical course of measles.

The Fatality of Whooping-Cough.—ELIZA ROOT (*Pediatrics*, February, 1904) calls attention to the fact, frequently overlooked by the profession, and not recognized by the laity, that the mortality from pertussis is nearly as great as that from scarlet fever. Figures taken from the records of nine of the principal cities of the country showed a mortality (for one year) of 1266 from pertussis, and of 1437 from scarlet. The author calls attention to the fact that the after-effects of pertussis are at times decidedly serious. Lesions of the central nervous system, visual disturbances of severe degree and even complete deafness have been repeatedly noted.

In view of these facts, the author thinks that greater efforts should be made in the line of prophylaxis. Pertussis should be placed on the list of diseases under control of the public sanitary authorities. It should be subject to quarantine and other preventive measures as much as scarlet, the methods varying only in their adaptability to the two diseases.

While pertussis is actively contagious from person to person, it is not easily carried; therefore its control need not be as complicated or as far reaching as that of scarlet. Nevertheless, municipal control of this disease is strongly to be advocated.

Influence of the Ingestion of Chloride of Sodium on the Body Weight of Nurslings.—NOBECOURT and VITRY (*Rev. Mens. des Mal. de l'Enf.*, March, 1904) have made a series of observations to determine the effect of the ingestion of common salt on the body weight of nurslings.

The doses used varied from 0.25 to 1.0, given in a small quantity of boiled water before the nursing. The salt was given for seven days consecutively, and then withheld for a like period, careful estimates of the weight being taken during the entire period.

On the whole, it was noted that the increase in weight was greater while the salt was being given than at other times.

In twenty-seven cases there was a very marked difference in favor of the periods in which salt was given, in fifteen cases the gain was greater in the periods without salt. But in the second class it was noted that the difference in increase in the two periods was slight, whereas in the first class the difference was very considerable. It is noteworthy that proportionately the gain was distinctly greater in premature, or poorly developed infants. This observation the authors consider of direct therapeutic value.

The best results were had with small doses of salt, approximately 0.01 to 100.0 body weight. Human milk contains about one gramme of salt to the litre and it was estimated that the doses given just about tripled the ingestion. As to the explanation for the favorable action of the salt, various theories have been advanced—which the authors briefly recapitulate.

From the practical viewpoint the authors conclude that in poorly nourished breast-fed infants the addition of small quantities of salt to the dietary may be of very decided value.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

Is Epilepsy a Functional Disease?—STARR (*Journal Nervous Mental Disease*, March, 1904).—This paper has occasioned considerable comment. It is important for at least two reasons. First, on account of the weight which must be given to a statement by Starr on this subject; and second, because the opinion here stated is based upon a study of two thousand cases of epilepsy. Four chief arguments are brought out to form the basis of the author's contention: (*a*) It is possible to draw a fairly sharp line between Jacksonian epilepsy and the ordinary idiopathic epilepsy. There are recognized a number of distinct types in this affection—at least four: the motor type, the sensory type, the aphasic type, and the psychical, in which dreamy states or imperative ideas dominate the consciousness. In all of these types it is admitted that the Jacksonian attack is a sure indication of local irritation of the brain cortex. It is a symptom of organic disease. (*b*) The second argument for the organic nature of epilepsy is drawn from the study of cases of maldevelopment of the brain. In 39 per cent. of cases of maldevelopment of the brain based on a material of four hundred cases, epilepsy was present as one of the chief symptoms. (*c*) Another argument for the organic nature of epilepsy can be urged from a study of the alleged causes of the affection, in which trauma, infection, heredity, etc., play the chief part. (*d*) The microscopic findings, while not in any sense universal, point to some organic change in the cortex. The sclerosis in the Ammons horn, noticed by Meynert; the gliosis disseminata, found by Fere, Chaslin, Alzheimer and others; the finer degenerative changes in the cells of the cortex, found by Clark, Prout and others—all point to the organic nature of the disease.

Conclusion.—The brain is a storehouse of energy, ready to give it forth in orderly manifestation, as in voluntary action and speech; or in disorderly discharge, as in an epileptic attack. The disease is a disorder of control over inherent energy. Its existence is proof of a weak and defective organization of the brain, and any lesion, no matter of what place, is capable of interfering with these mechanisms of control and of giving rise to the symptom. When the symptom is present there is evidence of a defect of control. And it seems to me far more reasonable, in the light of the facts here presented, to admit it is an organic disease of the brain characterized by a lack of control over the mechanisms of motor energy.

Some Unusual Cases of Tabes Dorsalis with Remarks. — REYNOLDS (*Rev. Neurology and Psychiatry*, March, 1904).—This is an account of four cases of tabes, all of which are unusual in the fact that the knee-jerk is present. In three of the cases there was likewise no ataxia. The diagnosis is not to be doubted, as the presence of Argyll-Robertson pupil in all cases and sensory changes in three of them allowed no other explanation of the symptoms. In the fourth case there were present loss of knee-jerk and Argyll-Robertson pupil, which, according to the author, are sufficient to make the diagnosis of tabes certain. In discussing these cases the author makes this statement: "I cannot remember any cases apart from tabes and general paralysis in which the Argyll-Robertson pupil was present." He quotes Clarke's statement to the effect that it is not present in any syphilitic nervous disease apart from these two conditions. The author regards syphilis as the most important predisposing cause of tabes in probably 90 per cent. of the cases, and for this reason in the early stages of the affection he always orders mercury and the iodides. When the disease is established, anti-syphilitic treatment does not do the slightest good.

Remarks on the Uncinate Group of Fits and on Severe Subcutaneous Hemorrhage Occurring in Epilepsy.—SPILLER (*American Medicine*, March 19, 1904).—Attention is called to this article on account of the importance of this group of epileptic phenomena, and because the true nature of it is so often allowed to remain unrecognized until a classical fit points to the diagnosis. Hughlings Jackson called attention to certain movements of the mouth and tongue occurring in epilepsy, which he regarded as the result of an epileptic discharge beginning in the gustatory elements of a certain region of the cerebral cortex (taste region of Ferrier). Jackson further called attention to the frequency of what he called "the dreamy state" in such attacks, and believed that this was typical of attacks in this region. The name of "uncinate group of fits" was given on the assumption that the starting point of such a fit was in the cells in the region of the unicinate gyrus. The dreamy state is described by one of Jackson's patients as follows: The man felt as if he were saying, doing and looking at things which he had experienced before. Surrounding people seemed to have strange expressions on their faces, and people and things seemed to be far away. Spiller describes three cases of his own to illustrate the subject.

Contribution to the Study of Progressive Locomotor Ataxia.—PAPADOPOULOS (*Le Progress Medical*, March 5, 1904).—This is an interesting communication from a physician in Asia Minor on the relation between syphilis and tabes. Inasmuch as syphilis is very prevalent in this region, some interesting data relative to this question might be expected. The conclusions noted by the author are as follows: (1) Although syphilis in our region is frequent, tabes is rarely found; (2) tabes in our district in women is unknown, although syphilis is very common, occurring as often as in men; (3) the women never drink alcoholic liquors and rarely a little wine; (4) the opinion of Fournier that tabes is of syphilitic origin is difficult of belief, at least in Asia Minor.

The Regeneration of Nerve Fibers in the Focii of Multiple Sclerosis.—Bartels (*Neurologisches Centralblatt*, No. 5, 1904).—In some of the recent work on the pathology of multiple sclerosis, the chief fact discovered was the persistence of the axis cylinder in the sclerotic patch. This accounts very well with the clinical observation so often made that in this disease there is no evidence that secondary degeneration in the nerve fiber results. Strauhber explains the finding of the author on the ground that the axis cylinders without the myelin sheath found in focii of this disease are not persisting axis cylinders at all, but are regenerated ones. Bartels believes that this assumption is entirely wrong because he has been able to follow the axis cylinders directly to the normal ones, and found that they were continuous. In this he is supported by the recent work of Bielschowsky.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. Johnson, M. D.

Contribution to the Pathological Anatomy of Tuberculosis of the Urinary Apparatus.—Halle and Motz (*Ann. des Mal. des Org. Urin.*, February 15, 1904).—After an exhaustive exposition of the pathology of urinary tuberculosis the authors give some brief therapeutic considerations. It is certain that urinary tuberculosis has recovered notwithstanding some well authenticated vesical lesions. Primitive lesions superficially ulcerated and well localized upon the vesical mucosa, recover; and we can even conceive of the complete cure of deeper penetrative lesions, provided the tubercular process is clearly limited. For we must distinguish between limited and diffuse lesions, the latter being without hope of reparation. Although the vesical wall is destroyed to a great depth we can hope for the arrest of the tubercular lesion. The cure can occur spontaneously under the sole influence of general treatment without any local therapy; in other cases it seems that local treatment prudently conducted by different means (requiring long patience and a rigorous asepsis) can contribute to the cure, but this occurs only where the lesions are favorable—that is, where they are discrete, superficial, and well localized. In another series of cases, less numerous perhaps, cure has been obtained by direct and active surgical intervention—that is, by early cystostomy with total excision of the localized lesions, or by their destruction by curettage or extensive cauterization. Because of the long fistulazation, to permit continuation of the local treatment, the fistula may become permanent. Then, too, after the removal of a tubercular kidney, the seat of a primitive lesion and a source of vesical infection, the vesical lesions and symptoms will disappear. Vesical lesions are always secondary to primitive lesions of like nature in the kidney or the prostato-testicular apparatus. These parts are not only the source of vesical infection, but they aggravate the vesical lesions by their proximity and successive reinoculation with tubercular products.

Ablation of the primitive infection is the most sure preventive means of further contamination. Even though it is late in the disease, surgery still plays a part. While surgery of the bladder leaves the renal and prostatic lesions untouched, yet it is of great service at times and especially in the painful and hemorrhagic forms. Here vesical incision together with curettage and cauterization followed by active and prolonged topical treatment, relieves the active symptoms and may even arrest its further progress. Finally, as a palliative means in the final destruction period, incision gives comfort to the patient.

Ureteral Injection of Oil Followed by the Spontaneous Passing of a Ureteral Stone.—SCHMIDT (*Jour. A. M. A.*, March 12, 1904).—The patient exhibited symptoms of a ureteral calculus in June, 1897. In December, 1902, a skiagraph taken showed the outlines of a ureteral stone. January 5, 1904, the author catheterized the ureter, and, after leaving the catheter *in situ* for two hours, injected 12 c. c. of sterilized albolene into the pelvis of the kidney, and 8 c. c. along the ureter as the catheter was gradually withdrawn. January 12th, after severe pains in the right iliac region the patient "felt something give way." She was then obliged to urinate and passed the stone. A skiagraph taken later showed the absence of the stone in the ureter in contradistinction to the skiagraph taken December, 1902, and the patient's symptoms have been relieved.

Suprapubic Prostatectomy.—STORER (*British Med. Jour.*, January 30, 1904).—There seems to be three conditions of senile enlargement:

1. A true hypertrophy of the gland without any interstitial growths.
2. The existence upon and within the substance of the prostate of one or more encapsulated tumors, distinct from the substance of the gland proper, and either myomatous or adenomatous in structure. Both forms of neoplasm or one only of them may be present.
3. A mixed condition of true hypertrophy and interstitial growths of the second class. This condition is much the most common. The tumors may eventually reduce the prostate to a state of pressure atrophy, or cause it to become a mere capsule for adventitious growths. It is the latter condition which in all probability has given rise to so much dispute and uncertainty as to the true pathology of enlarged prostate.

Decapsulation of the Kidneys.—HUBBARD (*Boston Med. and Surg. Jour.*, January 28, 1904).—Out of a series of seven cases not one of them can be said to have been cured, as not one of them has a urine free from albumen. One is, however, without subjective symptoms or a urinary sediment a year and four months after operation, and another seven months after operation, though lost sight of since. Of the remaining five, one, somewhat improved, died six months after operation of tuberculosis. The remaining four died, unimproved, two nineteen days and one three months after operation. Looking over these cases one cannot find any apparent reason, either in etiology, duration of the disease, or findings at the operation, why one patient should survive and be greatly benefited, another survive but the progress of the disease be not arrested, and a third die within a few days.

Report of Cases of Decapsulation of the Kidney.—BALCH (*Boston Med. and Surg. J.*, January 28, 1904).—Nine cases are reported of which the following is a summary:

Five have died at periods ranging from five days to two years and two months after operation. One case is probably cured; as the urine has only recently been found free from albumen and casts it is too early to classify it as cured. One case has improved and is still gaining, eleven months after operation. Two cases, a year after operation, show very little, if any, improvement.

In the nine cases the disease was of the chronic diffuse type. In each case ether was the anesthetic used. In two cases in which there was an autopsy some time after operation, it was found that a new capsule had formed not essentially different from the old one. The amount of urine and urea varied within wide limits. It was invariably smaller than usual the day after operation but regained or exceeded the previous amount within a few days.

Unilateral Hematuria from Chronic Nephritis.—FREEMAN (*Ann. Surg.*, March, 1904).—The most common cause of obscure renal bleeding is perhaps tuberculosis. Next in frequency comes chronic nephritis, usually of the interstitial type, and often attacking the glomeruli. The author discusses the various operations proposed for the relief of nephritic bleeding, and reports one case, which had been operated upon by decapsulation ten weeks previously, apparently relieved. In conclusion, he says that a prominent cause of renal hematuria, which is often unilateral, is chronic interstitial nephritis, often involving the glomeruli; this together with other obscure causes must be excluded before a diagnosis of "essential hematuria" can be made; and that decapsulation of the kidney is indicated in these cases, as it offers a good prospect of cure of both the hematuria and the nephritis. Nephrectomy should be discarded on account of the probable involvement of the other kidney.

Dilatation of the Bladder in Suprapubic Cystotomy.—BLASUCCI (*Med. Record*, March 19, 1904).—The tendency to give up dilatation of the bladder as a step in suprapubic cystotomy claims the attention of Blasucci. After a consideration of the reasons for omitting this step of the operation, he concludes: (1) A careful injection is of no danger to the bladder. (2) A limited dilatation of the bladder is preferable to none. (3) Anatomical researches in regard to the ascent of the peritoneal fold are of little or no value for the surgeon, and in practice we find more working space than by these researches we should suppose. (4) There are practically no cases in which suprapubic cystotomy is indicated, in which dilatation of the bladder cannot be carried out.

LARYNGOLOGY AND OTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

Non-Syphilitic Perforation of the Nasal Septum.—FELIX (*Semaine Medicale*, February 10, 1904) Calls attention to the importance of noting all causes of perforation of the nasal septum, because specific treatment might be begun and continued for years without benefit. Among other conditions causing septal perforations are the following: Simple ulcer, which never attacks the bone; occupation ulcerations occurring in workers in cement, the chromic acid salts and Swedish matches, which may involve bone. Perforation is common among cobalt mine workers and wherever arsenic is used in manufacturing. Also in factories of glass, paper, dextrin, sodium carbonate and hydrochloric acid. Other causes are atrophic rhinitis, traumatism (nasal operations), perichondritis and foreign bodies. Perforation may also be a complication of certain diseases, as typhoid fever, diphtheria, smallpox, tuberculosis, sarcoma, lupus, dental cyst, Bright's disease, leprosy, glanders, rhinoscleroma and tabes dorsalis. Other proofs must therefore be required before diagnosing syphilis.

On Primary Cancer of the Nose.—LENART and DONOGARY (*Orvosi Hetilop*, No. 21; *Monatsschrift fuer Ohrenheilkunde*, xxxviii, No. 1).—After carefully studying seven of their own and eighty reported cases of primary cancer of the nose, the writers conclude that carcinoma is the most frequent. Half of the cases have their origin in the middle turbinate. The next most frequent sites are the inferior turbinate, septum, roof of pharynx, medial wall of antrum of Highmore and sphenoidal cavity. Clinically sarcoma and carcinoma cannot, according to these authors, be differentiated. The histological examination can alone determine this. Endonasal surgery can be of value only in the beginning. Radical measures will have to be resorted to as a rule. The prognosis is bad, as there are only two cases on record in which a definite cure was effected.

Headache From Non-Suppurative Inflammation of the Accessory Sinuses of the Nose.—ROBERTSON (*Jour. A. M. A.*, March 5, 1904).—Headache from disturbance of the air pressure in the accessory sinuses of the nose is not so rare as might be supposed; there are present all the symptoms of an empyema except the discharge. The cause of this condition has been stated to be due to increased air pressure in the sinus, but the author believes it to be due to a lack of pressure. This diminution in pressure is caused by obstruction to the ingress of air to the particular sinus by closure of its natural orifice. For instance, the middle turbinal may be swollen from inflammation, the swollen body obstructs the sinus so that the cavity is shut off from the nasal chamber. The imprisoned air loses its oxygen from absorption, the pressure on the mucous membrane is lessened by rarifaction of the air contained in the cavity. This causes a swelling of the mucous membrane in the sinus. If the opening

becomes patent the condition subsides, but in cases where the opening remains closed for some time the cavity is encroached upon (1) by the swelling of the mucous membrane; (2) by pouring out into the cavity of lymph, and (3) by engorgement of the mucous membrane itself by lymph. The same condition exists here as in the non-suppurative inflammations of the ear caused by occlusion of the eustachian tube. The symptoms vary according to the time the sinuses remain closed. The cases may present intermittent symptoms from occasional opening of the sinus by contraction of the tissues of the middle turbinate. Two cases are reported in detail.

On the Abortive Treatment of Tonsillitis.—Jordan (*Orrosi Hetilop*, 1903; rev. *Monatsschrift fuer Ohrenheilkunde*, January, 1904) highly recommends the administration of sulphate of quinine in tonsillitis and believes its action to be as specific in this disease as it is in malaria. The quinine is given only at night, a half gram at seven and a half gram at seven-thirty. The following day the patient is without fever and by evening the patient will have fully recovered. That the quinine does not have any prophylactic action, the author believes to be illustrated by one of his cases, in which there was an involvement of the right tonsil with high temperature in the evening. Following the administration of the quinine there was a normal temperature in the morning, while the same evening there was an involvement of the left tonsil with high temperature. The quinine was again administered with the result that there was no recurrence of the trouble. The writer also claims that this treatment is of value as a diagnostic agent in differentiating tonsillitis from diphtheria and scarlatinal anginas, as the quinine does not exert any influence on the last two.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

Some of the Physical Properties and Medical Uses of Radium Salts, with Report of Forty-two Cases Treated by Pure Radium Bromide.—Francis H. Williams (*Medical News*, February 6, 1904).—For practical purposes the strength of a given specimen of radium may be roughly measured by its power to penetrate iron. The salts only of radium, chloride and bromide, are used, metallic radium being unstable in the air. Radium has five properties that especially deserve notice: 1st. It maintains a temperature above its surroundings under thermal insulation. 2d. It is luminescent. 3d. It is a spontaneous source of electricity. 4th. It gives out three kinds of rays, named by Rutherford, alpha, beta and gamma. 5th. It produces in surrounding objects what Mme. Curie has called "induced radioactivity."

The alpha rays constitute the largest part of the radiation. They are easily absorbed and are slightly deflected by a strong magnetic field. The beta rays are not so easily absorbed and they are more strongly de-

flected by the magnetic field than the alpha rays. The gamma rays are the most penetrating of the three kinds. They are not deviated by the magnetic field.

The emanation, which is thought to be a gas, imparts radioactivity to objects that have been in the neighborhood of radium salts for a sufficient period, that is to say, these objects even after removal from the radium, give out rays for a certain length of time. Mme. Curie states that certain substances, such as rubber, celluloid, paraffin, etc., retain the radioactivity imparted to them longer than can be accounted for by the general law, and that they seem to become charged with radioactive energy which they lose gradually while imparting radioactivity to their surroundings. This may make rubber useful in treating certain diseases.

From a medical point of view radium salts may be of service in two ways: First, by their rays; second, by their emanation.

Their Value in Diagnosis.—The radium rays, unlike the x-rays, cannot be used for diagnosis or prognosis, either by means of radiographs or of the fluorescent screen, on account of their inability to show sufficient differentiation between the tissues.

The Value of Radium as a Therapeutic Agent.—The use of radium salts for therapeutic purposes needs much the same kind of experience as is required for the successful use of the x-rays. As with the x-rays, caution must be observed as to burning, etc., when treating patients.

The method of using radium is simple. If strong action of the radium is desired, the metal box containing the salts is placed on the part to be treated. In this case the box should first be covered with a thin rubber cot, which can be readily removed and a new cot used for each patient. By this means the radium capsule does not come in contact with the part to be treated, but is separated from it by this new and clean substance. If a weaker action of the radium salts is indicated, the capsule is placed at a greater or less distance, according to the needs of the case.

Exposures in some cases must be longer than in others and the frequency with which they are given must vary with the case. Exposures should not be made every day; two or three times a week seems to be the the safest procedure. Exposures of many hours would be necessary if weaker forms of radium were used, that is, radium of 1,000 or 8,000 activity, before any special results could be obtained, and these weaker forms would not be efficient as compared with pure radium, so that they need not be considered. Pure radium bromide is none too strong for the work to be accomplished in certain cases. The author reports forty-two cases, many of which were treated at the Boston City Hospital. Of these nine were diseases of the skin, namely, one case of acne, two each of eczema and psoriasis and four cases of lupus vulgaris. In the one case of acné each pustule was exposed to the radium through an opening in a sheet of lead foil and healing took place. In the two cases of eczema two exposures were given and there seemed to be some improvement, but the itching was not relieved. In the two cases of psoriasis the radium was used for small areas only. Healing took place in each of these areas a few days after exposure. In the four cases of lupus the results have been very satisfactory. Two patients are now apparently well and the two others are improving. The action of the radium in all

these four cases was far more prompt than that of the x-rays. The author obtained improvement in keloid, epidermoid carcinoma and carcinoma of the breast. In the latter, however, the improvement was not as marked as with the x-rays.

These cases show that radium is useful for treating some skin diseases and superficial new growths. In comparing the action of the x-rays and radium I think that the comparison at the present time is greatly to the advantage of the radium and quite in contrast with the comparison which was made between radium and the x-rays for taking photographs or for fluoroscopic examinations. The dose from radium is uniform and the strength of the output does not vary, so that the dose depends entirely on the length of exposure and the distance of the radium from the part to be treated. Radium may be applied to parts which are not readily accessible to the x-rays, as the mouth or vagina. The healing action of the radium is more prompt, the treatment therefore extends over a shorter period and fewer exposures are required than when the x-rays are used. Radium has the further advantage of bringing about healing in some cases where the x-rays have failed after careful and long continued treatment.

In conclusion, the author's experience teaches him that there is much similarity between the action of the radiations from the radium and the x-rays. If the results obtained by radium prove permanent, this new therapeutic agent will be largely used instead of the x-rays, but the two will supplement each other.

1. Certain diseases promise to yield more readily to treatment by radium and others to the x-rays.

2. A disease that has attacked different parts of the body of a given patient may be better treated in certain regions by radium and in others by the x-rays.

3. It is quite possible that in some instances the two remedies used together on the same area and at the same sitting, may accomplish better results than either alone.

Brief Note on Frost-Bite in Young Children.—W. A. Hardaway, M. D. (*Courier of Medicine*, March, 1904).—The author reports three cases of a peculiar condition occurring in young children, usually of fair complexion and light hair, as a result of exposure to extreme cold. The effect of the cold manifests itself as sharply defined erythematous areas, usually upon the cheeks, but it may occur on any part which has been exposed to the conditions named. The children have a slight rise in temperature, and the adjacent lymphatic glands may be enlarged. These areas are deeply infiltrated and can be picked up between the fingers. Manipulation of the parts gives the impression of an embedded solid mass. The epidermis is smooth and unaltered, and at no time presents vesicles or bullæ. After a week or ten days of treatment the doughy mass usually resolves itself and the parts become normal, the dark flush often persisting for some time. The condition may, of course, be recurrent under the same exciting factors. These subjects are usually fat, and the parts attacked are those generally left unprotected, and therefore exposed to the exciting factor. The treatment which the author

has found most satisfactory is the local application of unguentum vaselini plumbicum, stiffened with about 12 per cent. zinc oxid. This is spread on strips of muslin and applied neatly to the parts.

Multiple Lupus.—H. G. ADAMSON (*British Journal of Dermatology*, March, 1904).—This occurred in a girl of five years. Scattered over the body were several typical lupus nodules. They were distributed as follows: One on the left cheek, one on the chest, one on each arm, one on the dorsum of foot and two on the inner surface of the left buttock. Those on the buttocks were oval and the size of a small bean. The others were split-pea sized. The lesions had been noticed about two and a half years, and the mother thought that they had not increased in size since their first appearance. One lesion on the chest had entirely disappeared, leaving merely a pale mark, but no scar. The child had measles about three years ago. There was no other evidence of tubercular disease, but twelve months ago the patient attended hospital for several months for chronic diarrhœa.

Du Castel has drawn attention to the fact that multiple cutaneous tuberculosis is not infrequently immediately preceded by an attack of measles. The eruption bursts out suddenly, suggesting an infection by the blood stream from some central focus. Ususally there is a wider period between the attack of measles and the outbreak of lupus. The eruption may remain unchanged for years, or some of the nodules may spontaneously disappear, with or without subsequent scar, while others may enlarge into extensive patches. The author refers to a case which he exhibited some years before of multiple lupus verrucosus in a boy. The whole of the lesions disappeared entirely, although the child subsequently developed other tuberculous lesions, namely, a postero-pharyngeal abscess and hip disease.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

The One-Hand Method of Testing the Tension of the Eye.—S. C. AYRES (*American Jour. of Ophthalm.*, January, 1904).—With the patient looking down, the index and middle fingers (of either hand) are placed on the upper lid and pushed back until the finger nails rest on the rim of the orbit. Alternate pressure is then made over the globe.

Greater delicacy, freedom of the arm from constraint and especial convenience in testing the ocular tension in bedridden patients, are advantages claimed over the bimanual method.

Parinaud's Conjunctivitis.—J. CHAILLOUS (*Ann. d'Oculist.*, January, 1904).—This interesting paper reviews the history and well-authenticated published cases of the clinical entity first described by Parinaud in 1889. The disease was defined as "an infectious conjunctivitis, which

is always accompanied by suppuration of adjacent lymphatic glands and which is apparently of animal origin."

In the three cases which formed the basis of Parinaud's original communication the affection was monocular. The following picture described by the discoverer still holds true in the main: The appearances bear some resemblance to those characteristic of trachoma. Red or yellow vegetations, translucent at first but later becoming opaque, are found in the conjunctiva. There are, in addition, smaller yellow granules, which bear a close resemblance to those found in tuberculosis of the conjunctiva. The lesions are situated in both lids, the cul-de-sac and a portion of the bulbar conjunctiva. The secretion is mucoid with fibrinous debris, but there is no true suppuration. The lids are swollen and hard to the touch and contain nodules resembling chalazia, the region of the parotid is inflamed, the lymphatic glands swollen and at times softened. Fever of moderate degree is usually present. Within three or four months the granulations disappear spontaneously. The enlarged glands either disappear by absorption or suppurate. This suppuration of the gland, which indicates the infectious nature of the process, is regarded by Parinaud as pathognomonic of the disease.

Chaillous has carefully reviewed twenty published cases, including five of his own, and reaches the following conclusions: The affection is characterized by the appearance on the conjunctiva (usually of one eye only) of strawberry-colored vegetations varying in size and form. Erosions of the epithelium may coexist. The lymph glands in the preauricular and cervical regions are always enlarged. The lymphatics may or may not suppurate, but they are always enlarged, sensitive to pressure and painful. The conjunctival lesions and the enlarged lymphatic glands pass through a definite evolution ending in recovery. The adenopathy which may be pretty well generalized lasts longer than the vegetations. The clinical features of this type of conjunctivitis have much in common with tuberculosis of the conjunctiva, and histologic examinations and animal inoculation may be necessary to differentiate the two diseases. The absence of induration, the tendency of the lymphatics involved to suppurate, and the absence of skin eruptions, serve as differential diagnostic points between this disease and syphilis of the conjunctiva.

The variety of the manifestations of the disease suggests that the cause may not be the same in all cases. Until the exact etiology shall have been established it is suitable to classify together cases presenting this fairly definite symptom-group.

Cases of Optic Papillitis in Enteric Fever in Children.—G. CARPENTER (*The Ophthalmoscope*, February, 1904).—The rarity of this complication has led the author to report the following two cases:

CASE 1.—A child of eleven developed, at the end of the second week of an unquestioned typhoid, a slight swelling of the optic papillæ. Eight days later the ophthalmoscope showed increased prominence of the disks which were greyish with blurred margins. Fine vessels on the right disk were "corkscrewy." Two months later the left disk was decidedly "wooly" and the margins of the right were blurred above and below.

CASE 2.—Female, seven years, showed at the end of the third week red, swollen disks with ill-defined margins. The vessels were numerous, the veins very tortuous. Six weeks later the ocular complications had entirely disappeared.

The type of the papillitis is that observed in tubercular meningitis.

Ulceration of the Cornea Due to Infection with the Bacillus Pyocyaneus.—A. MCNAB (*Ophthalm. Review*, March, 1904).—The case was seen six days after the beginning of trouble. The conjunctiva was edematous and covered with a greenish, purulent secretion. Almost the entire cornea was occupied with a round ulcer. Extensive hypopyon. Cultures and animal inoculation showed the presence of a pure culture of B. pyocyaneus.

Ocular infection with B. pyocyaneus is very rare, there being only three cases in the literature in which the bacteriology has been thoroughly worked out.

The treatment advocated is early and free opening of the anterior chamber by the Saemisch incision.

Sarcoma of the Orbit. Report of a Case Cured by the X-Ray.—L. WEBSTER FOX (*Archives of Ophthalm.*, vol. xxxiii, No. 1, 1904).—The patient was a female of twenty, who presented, herself with a tumor the size and shape of a large olive attached to the inner bony wall of the left orbit. Trouble in the left antrum being suspected, an exploratory puncture was made with negative results. Incision at the inner canthus, together with the elevation of the periosteum over the anterior and middle ethmoid cells allowed the escape of a glairy fluid, probably originating in the diseased ethmoid cells. Free drainage into the nose was established. Shortly afterwards a mass of granulations appeared in the wound, which was removed and examined microscopically. The pathological diagnosis was "spindle-cell sarcoma."

Operation being considered inadvisable, recourse was had to the x-ray. For four weeks the patient was subjected to daily sittings of five minutes each with a high vacuum tube at a distance of ten inches and a current of four amperes. At the thirtieth application excessive erythema of the eyelids and adjacent integument occurred necessitating less frequent seances. In all, forty-six exposures were made, the growth diminished in size and the globe no longer protruded. The final result was extraordinarily good, the facial symmetry being re-established. There was complete destruction of the eyelashes and eyebrows.

The condition before and after treatment is beautifully illustrated by photographs.

BOOK REVIEWS.

COMPEND OF DISEASES OF THE EAR, NOSE AND THROAT. By JOHN JOHNSON KYLE, B. S., M. D., Lecturer on Otology, Rhinology and Laryngology and Assistant to the Chair of Surgical Pathology in the Medical College of Indiana. With 85 illustrations. P. Blakiston's Son & Co., Philadelphia.

This little work is intended for the student and general practitioner engaged in a limited way in the treatment of the ear, nose and throat. In the chapter on the treatment of the various diseases of the above-mentioned organs the author has succeeded admirably, but the essentials of diagnosis are rather too briefly touched upon, and for this reason the book will hardly satisfy the desires of a practitioner who wishes to familiarize himself more minutely with these special branches.

OBSTETRICS FOR NURSES. By JOSEPH B. DE LEE, M. D., Professor of Obstetrics in the Northwestern University Medical School, Chicago; Lecturer in the Nurses' Training Schools of Mercy, Wesley, Provident, Cook County and Chicago Lying-in Hospitals. 12mo of 460 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company. 1904. Cloth, $2.50 net.

Although this work was written, as the author states, primarily for nurses, yet we firmly believe that medical students will find in it much of value, since the duties of a nurse often devolve upon him in the early years of his obstetric practice. There are really two subjects considered—obstetrics for nurses and the actual obstetric nursing—and Dr. DeLee has combined them so that the relations of one to the other are natural and mutually helpful, presenting this important branch of medicine in a clear and interesting form. The illustrations have not been borrowed from other works, as is too frequently the case, but have been made expressly for this book. The photographs were taken by the author from actual scenes, and are true to life in every respect. The text is the outgrowth of eight years' experience in lecturing to the nurses of five different training schools.

ATLAS AND EPITOME OF OPERATIVE GYNECOLOGY. By DR. O. SCHAEFFER, of Heidelberg. Edited, with additions, by J. CLARENCE WEBSTER, M. D., Professor of Obstetrics and Gynecology in Rush Medical College. With 42 lithographic plates in colors, many text cuts, a number in colors, and 138 pages of text. Philadelphia, New York, London: W. B. Saunders & Company. 1904. Cloth, $3.00 net.

This new addition to Saunders' series of Hand-Atlases is excellent. This atlas is opportune, and the excellence of the lithographic plates and the many other illustrations render it of the greatest value in obtaining a certain practical knowledge of operative gynecology. The text closely follows the illustrations, and we have found it fully as accurate.

THE RELATION OF SOCIAL DISEASES AND MARRIAGE. BY PRINCE A. MORROW, A. M., M. D., Emeritus Professor of Genito-Urinary Diseases in the University and Bellevue Hospital Medical College; Surgeon to the City Hospital; Consulting Dermatologist to St. Vincent's Hospital,

etc., New York. In one octavo volume of 390 pages. Cloth, $3.00 net. Lea Brothers & Co., Publishers, New York and Philadelphia. 1904.

The importance and practical value of this new and timely volume, written by a man of long experience and sound common sense, upon a subject which so vitally concerns mankind individually and collectively, insures it a wide recognition. Heretofore no comprehensive treatise on the subject has existed in the English language. The work sets forth the dangers introduced by venereal infection into marriage.

A most interesting chapter is the one dealing with the "Medical Secret," considering the influence to be exerted by the physician in preventing undesirable and improper marriages. A perusal of certain parts of this book can well be recommended to every thoughtful adult.

PROGRESSIVE MEDICINE. VOL. I, MARCH, 1904. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 337 pages, 7 illustrations. Per annum in four cloth-bound volumes, $9.00; in paper binding, $6.00; carriage paid to any address. Lea Brothers & Co., Publishers, Philadelphia and New York.

This volume contains the following contributions: "Surgery of the Head, Neck and Thorax," by Charles H. Frazier, M. D.; "Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia and Influenza," by Robert P. Preble, M. D.; "Diseases of Children," by Floyd M. Crandall, M. D.; "Laryngology and Rhinology," by Charles P. Grayson, M. D., and "Etiology," by Robert L. Randolph, M. D.

With this volume the annual subscription price for this excellent publication has been reduced to $9.00, and the publishers have a separate edition in paper binding which is furnished for the exceedingly low price of $6.00 for the four volumes.

Considered from every point of view this work is one for which the medical profession may well be grateful to the author and publisher.

HANDBUCH DER GEBURTSHILFE. In drei Baenden herausgegeben von F. VON WINCKEL in Muenchen. I. Band, 1. Haelfte. Wiesbaden: Verlag von J. F. Bergmann. 1903.

The last decade of the past century will live in the history of medicine as one characterized by the production of splendid work in the field of obstetrics. Researches pertaining to the anatomy of nidation of the ovum, to bacteriology of the female genitalia, to the biology of the fetus, etiology of eclampsia and puerperal fever have fundamentally changed and, in certain features, wiped out the teachings of the past. They have aroused interest for most fruitful investigations along entirely new lines. Many new text-books have been published, numerous new periodicals devoted exclusively to obstetrical and gynecological subjects have appeared.

Von Winckel, whose name is just as well known to American obstetricians as it is to those of Europe, has undertaken the gigantic task of embodying all the new teachings of obstetrics, and all the old ones still left, in one "Handbuch." Those familiar with foreign literature know the exactness, completeness and thoroughness of these "Handbooks," well-nigh characteristic of German medical literature.

The first half of the first volume, a book of 657 pages, begins with a history of gynecology, written by the distinguished editor himself. The rest of this volume is devoted to the physiology and symptomatology of pregnancy, treated in sixteen chapters, which are written by Strassmann, Pfannenstiel, Goenner, v. Rosthorn and v. Winckel.

The make-up of the volume is splendid. Most of the illustrations are original and of unusual clearness.

To the American physician interested in obstetrics this work recommends itself, for the reason that there is nothing extant in the English language that could be in any

way compared to it, at least as far as the completeness of the material presented is concerned.

Der Koerper des Kindes. Von Dr. C. H. Stratz. Mit 187 in den Text gedruckten Abbildungen und 2 Tafeln. Stuttgart: Verlag von Ferdinand Enke. 1903.

Numerous books have been written on the sick child, very few on the healthy child. In the works of anatomists and artists but little space is given to the peculiarities in the formation of the body of the child. Stratz subjects these peculiarities to a critical analysis from an objective scientific point of view, in order to differentiate them into normal and abnormal ones. From the standpoint of the art critic he shows what should be considered a well and what a badly formed body.

The value of proper information on such points for the practicing physician is obvious. It is a just claim of older physicians that the younger generation, by resorting entirely to physical examination and to the microscope, is neglecting the practice of a careful ocular inspection in the art of diagnosis. There can be no doubt that a well-trained eye and a thorough familiarity with the form of the human body will always prove a most valuable aid in arriving at a diagnosis. Stratz, who is the author probably of the best known book on the normal form of the female body, deserves praise for giving to the profession this new volume, devoted exclusively to the body of the child.

Like his former publications, this new book is magnificently illustrated and written in a language which would make it hard to decide whether the author is best as a physician, art critic or literateur.

Nervous and Mental Diseases. By Archibald Church, M. D., and Frederick Peterson, M. D. Fourth edition. W. B. Saunders & Co., Philadelphia. 1903.

The popularity of this text-book on nervous diseases is attested by the fact that the present volume is the fourth edition. The new feature of this edition which deserves especial attention is the chapter on a review of some recent problems of psychiatry by Adolf Meyer. This is easily one of the best critical papers on this subject that has appeared in years. The wisdom of including such an important paper as this in a text-book designed especially for students is problematical. The psychiatry in the present volume still contains the long history of a case of paranoia to which is given forty pages of the text, while dementia paralytica (a much more important subject to the student) is given only twelve. There is much added matter in this edition which brings the book well up to date, and makes it on the whole a very satisfactory book for the student as such books go.

Chronic Headache and its Treatment by Massage. By Gustaf Norstrom, M. D. G. E. Stechert, New York. 1903.

This is a collection of a number of cases of headache and migraine treated by massage. The basis of the headaches in this collection of cases is almost universally some palpable change in the muscle or in the nerve, such as myositis at the insertion of the muscles or an enlarged gland which pressed upon the nerve or muscle. The muscular indurations are a marked feature in all the cases here quoted, and the success obtained in all of them is evidently due to the presence of these mechanical causes of the symptoms. Within the limits here described the method of treatment advocated by Norstrom seems to be very effective, but this can apply to only a very small per cent. of chronic headaches. The chief criticism that can be directed against this little book is that of too reckless generalization derived from a comparatively small number of cases. The fifteen cases given here in some detail are not convincing on account of the short time they were observed, and on account of their too evident selection for purposes of therapeutic proof.

INFANT FEEDING IN ITS RELATION TO HEALTH AND DISEASE. A Modern Book on all Methods of Feeding. For Students, Practitioners and Nurses. By LOUIS FISCHER, M. D., Visiting Physician to the Willard Parker and Riverside Hospitals, of New York City; Attending Physician to the Children's Service of the New York German Poliklinik; Former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital; Fellow of the New York Academy of Medicine, etc. Third edition, thoroughly revised and largely rewritten. Containing 54 illustrations, with 24 charts and tables, mostly original. 357 pages, 5¾ x 8¾ inches. Neatly bound in extra cloth. Price, $2.00 net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia, Pa.

The third edition of Dr. Fischer's well-known book on infant feeding has been completely revised and considerably enlarged. Among the new chapters is one on buttermilk feeding. This method is now attracting a good deal of attention in various countries. Explicit directions as to preparation of the food are given. Other new chapters are on milk, idiosyncrasies in children and on feeding of children with cleft palate.

Concerning the question of laboratory modification of cow's milk, the author believes that, insofar as the laboratories succeed in giving a clean, pure milk, their work is of great value. The mathematically exact modification is after all of less value.

As a whole, the work will be found to be a very useful compendium of present-day knowledge of the ever-interesting subject of infant feeding.

The author's arrangement of his subject-matter leaves something to be desired in the way of logical sequence.

Thus, chapters xl-xlv are: Nathan Straus' Milk, Charity, Colic, Constipation, Statistics, Rachitis, Scurvy.

A good working index is, however, appended. The bookwork is in every way satisfactory.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1904. A Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from journals, monographs and text-books of the leading American and foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of GEORGE M. GOULD, A. M., M. D. In two volumes. Volume I, including General Medicine. Octavo, 673 pages, fully illustrated. Volume II, General Surgery. Octavo, 680 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904. Per volume: Cloth, $3.00 net; half morocco, $3.75 net.

The current issue of Saunders' Year-Book not only maintains the high standard of excellence established by former issues, but is in many respects distinctly superior. The work is, as usual, under the general editorial charge of Dr. Geo. M. Gould, than whom no one is better fitted for the task. For the benefit of those unfamiliar with the scope of the work, it may be stated that the essentials of progress in the multiform ramifications of medicine and surgery are presented by workers in the different branches. The value of the articles is greatly enhanced by judicious critical commentary. A careful perusal of this work will enable the busy specialist and general practitioner to acquire a knowledge of the general trend of medical and surgical advance of which he would otherwise remain in ignorance. Its value as a book of reference will be conceded by all. The excellent letter-press is embellished by well-executed text-cuts and full-page insert plates.

INFECTIOUS DISEASES, THEIR ETIOLOGY, DIAGNOSIS AND TREATMENT. By G. H. ROGER. Translated by M. S. GABRIEL, M. D. Illustrated with 43 engravings. Pp. iv—874. Lea Brothers & Co., New York and Philadelphia. 1903.

Professor Roger's point of view combines that of the laboratory worker with that of the clinical observer in an unusual degree. He has himself performed a great deal of work, both along physiological and bacteriologic lines, while, nevertheless, his chief interests have remained clinical. His book has both the merits and the defects resulting from this characteristic. The reader is, as it were, attending a course of lectures, given by a strong and enthusiastic man, who stands at the very borderline of medical knowledge, which he himself has helped to advance in no small degree. He dilates with illuminating detail upon those features of his subject which have chiefly interested him and upon which he himself has done research work. On the other hand, the book is not a storehouse of exhaustive information, such as many of the German monographs are. Many features that have not occupied the attention of the writer himself the reader will find very briefly treated or even ignored. The book is thus above all a stimulating one and such as would appeal primarily to the well-read physician who, well equipped with general medical information, desires to sit at the feet of a great clinician and experimenter. As a text-book for students or as a general work for reference, it would be of little use.

MORPHIUM ALS HEILMITTEL. Von PROF. DR. O. ROSENBACH. G. E. Stechert, New York.

In this little monograph of some 94 pages, Prof. Rosenbach again mounts the hobby on which he trotted so gaily through the pages of *Die Deutsche Klinik*. That opium or morphine is the most important of all our drugs, whose value is fully appreciated by but few physicians, may be readily admitted. But as one reads Prof. Rosenbach's enthusiastic words one is tempted to believe that he considers morphine nearly a cure-all. His favorite thesis is that morphine is not only a valuable sedative, an indirect tonic where it gives needed rest, a stimulant where it prevents inhibitory impulses, a laxative where it abolishes intestinal spasm, etc., all of which may be readily admitted. Morphine in addition, he believes, has an almost mystic power of enabling the worn-out cells to build up the tissues that have been destroyed by disease, overuse or other agency, and this not indirectly by means of the rest it gives the organism, but directly through some metabolic power of its own. The book, however, is well written and will interest the reader even though he decline to follow the author as far as the latter would lead him.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. Pp. XI–770. E. B. Treat & Co., New York. 1904.

The Annual enters its twenty-second year in much the same form as recent numbers. After a general review of recent advances in therapeutics, the newer remedies are taken up one by one and discussed in alphabetical order. On the whole these discussions are adequate; it would of course be idle to expect completeness in so condensed a presentation, nevertheless essential points are occasionally omitted. For instance, in speaking of the favorable effects of rodagen on Grave's disease, the reviewer calls attention to the fact that in the great majority of reports no beneficial effect upon the disease was observed from the administration of the drug. The bulk of the volume is devoted to a review of the year's publications on treatment arranged as in an encyclopedia chiefly alphabetically under the heads of the diseases discussed. The plates are of great beauty and distinctness and add greatly to the value of the book. The latter is certainly doubled for purposes of reference by an adequate index. The busy practitioner who desires the gist of the year's literature on therapeutics in condensed form will find the little volume worth having.